THE WATER FOWL FAMILY

By

LEONARD C. SANFORD

and others

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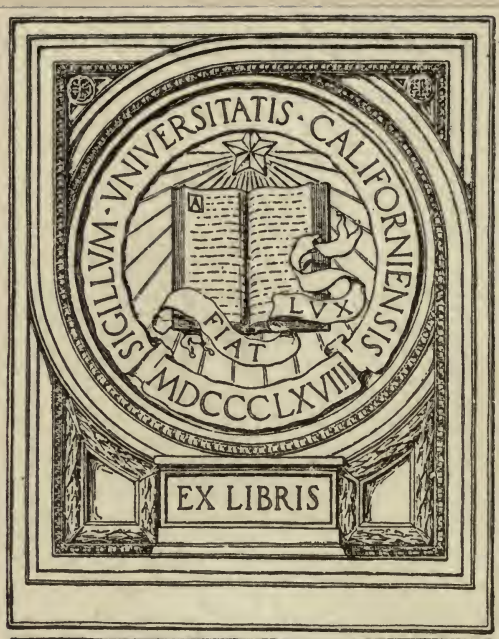
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CASPAR WHITNEY

THE WATER-FOWL FAMILY

The MMC Co.

THE WATER-FOWL FAMILY

BY

L. C. SANFORD

L. B. BISHOP

AND

T. S. VAN DYKE

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By L. C. Sanford

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THE WATER-FOWL FAMILY

The Anatidæ, or family of wild fowl, comprises the swans, geese, sea-ducks, river-ducks, and mergansers. From time immemorial this group of birds has been most important in its relations to man. Divided into various subfamilies, it contains nearly two hundred species, about sixty of which are North American. The peculiar characteristics of these birds are well known: all have heavy bodies, and most of them long necks; the bill varies much in shape in the different species, but is usually broad, covered with a soft skin and with a hard nail at the tip; it is often provided with little comb-like processes situated on its inner edges, which assist in sifting the food from its common environment of mud and sand. The tongue is large and fleshy, adapted for all sorts of water-vegetable material and various crustacea and shellfish which comprise the diet. The windpipe varies curiously in the different individuals, being convoluted and twisted, thus affording the volume of voice noted particularly among some of the geese and swans. The legs are short, the forward toes webbed, the tarsus and feet cov-

ered with a naked, scale-like skin, nicely adapting the bird for water. The wings vary in length in comparison to the body, but are commonly rather short and specially strong, calculated for speedy, powerful flight, making possible the long, tedious migration peculiar to many of the species. The plumage is thick and dense, consisting of short, soft, outer feathers over a skin coating of down. In many of the species the color is plain, and of a protective character well suited to the haunts of the bird — a condition which is regularly true of the female and the young.

The males of a number of varieties of ducks, however, when full-plumaged in the late fall and winter, are unsurpassed in beauty of coloring; an attire that is retained until incubation has begun. About this time, the birds moult, the male assuming a dress more or less closely resembling the female. During the moulting period for a while many of our water-fowl are helpless, the large pinions of the wing having been lost. Now every protection against the depredations of the natives and other enemies is essential, and hence nature's provision in the change of color. The males of many of our water-fowl, after incubation has been established, separate from the females, and gather by themselves on neighboring bodies of water, where greater security is afforded than the shores and marshes selected for nesting purposes could give.

The female attends to all of the duties of nesting and hatching, bringing up the brood, and leading them south when an all-provident nature directs the weary flight. In the different species of geese and swan both birds divide the duties of nesting.

The migration of our water-fowl is one of the wonders of instinct; gathering in flocks sometimes of vast proportions, under the leadership of experienced pilgrims, the ranks proceed on a straight, true course, probably often making no stops until the permanent quarters of the fall and winter have been reached. This trait is most marked among the more powerful flyers, the geese and swans. From the breeding-ground to the last stopping-place, and all along the line where circumstances have permitted, this vast army has been beset with destruction on all sides. The Eskimo and the Indian have robbed their nests, destroyed the young, and killed them when helpless from their moulting. Formerly the geese were slaughtered in thousands at this time, and salted for winter use, actually, in some instances, herded together and the entire body killed. Once within the boundaries of the United States, their persecution is incessant; every device known has been used against them, with results that within the past few years the diminution in numbers in many of the old resorts has been most apparent. From the remotest north to the tropics, wherever

man has gone, he has found these birds and waged a relentless warfare on them. Recently I heard of a device which has been common for years in southern Mexico. Not far from the city of Mexico, the larger lakes, which are the winter home for countless thousands of wild fowl, are leased for large sums to Mexicans who gun for the market. Cannon are placed in favorable positions along the shore, and for days the birds are baited within range, then a discharge is fired into a mass of ducks, and literally hundreds are killed. This has been a local practice for many years.

No birds are more essential to man than the wild fowl; they serve him with food and in many regions with clothing; the soft downy skin of the eider being regularly used by many of the Eskimos for undergarments, while the down of these birds is an important article of commerce in many countries of the north. In Norway and Iceland the breeding eiders are protected. The islands are carefully watched and every facility afforded the sitting ducks. Under these circumstances the bird can regularly be lifted from the nest while the eggs are removed, a sufficient number being left to hatch. In some instances these birds actually nest within the natives' houses, and there is a story of a Norwegian who gave up his fireplace to an eider. As opposed to the wanton destruction which threatens our water-fowl almost

universally, it is specially pleasant to see these instances of protection. In countries where parks and gardens afford refuge, the wild duck are always quick to take advantage. In the United States, the Yellowstone Park is the best instance of this protection, and here every lake along the highways is patronized by ducks and geese as tame and unsuspecting as barnyard fowl. In one instance I saw a flock of Canada geese circle around one of the hotels, and alight in the yard, where they fed without the slightest concern. About the same hour daily this flock of fifteen or more would appear for their evening meal.

Many different varieties of wild fowl are seen in various parts of our country in a state of domestication, particularly where decoy shooting is afforded. The Canada goose quickly makes the most of circumstances and poses as a certain lord among the domestic ducks and geese, often mating with a barnyard goose. The offspring have the general coloring and characteristics of the wild bird, but like most hybrids are regularly barren. This is a present instance of the relationship of our barnyard geese and ducks to their wild ancestors. The progenitors of the domestic race can be traced to a comparatively few species. Among the most notable are the bean goose, the mallard, and muscovy ducks; these being the varieties most common in countries where ancient civilization existed.

CHAPTER I

DUCK-SHOOTING

An almost irresistible desire comes over most men, at times, to change the routine of civilized life for the quiet and solitude of the wild. Forest, field, and waters all offer their inducements, in many instances combined with hardship and fatigue; and yet to him who loves it, actual suffering often only adds to the satisfaction of the reward, doubly pleasing as the result of endurance and patience. With a large number of those individuals to whom the gun and all that goes with it is dear, the wild duck brings up the pleasantest recollections and anticipations. The ponds and lakes of the North, and the prairie sloughs, come before him, where they nested and spent the summer, restless at the time of approaching fall for the southern migration. He remembers drifting down the river with a gentle current, amid October foliage, to where alders and willows lined the bank and darkened the water; where he saw the ripple that betrayed the presence of wild duck, before they took wing with frightened splashing. Early mornings come to his mind, when he break-

fasted before dawn, and pushed out from the shore into the narrow bay, its surface hardly ruffled by a light breeze. Dark lines marked the points of marsh, as yet indistinct; a flock of birds leaving the water made the first sound; then the soft whistling of overhead wings. Quietly the boat moved on; finally the blind was reached. Then the few minutes at sunrise, of anticipation, the first birds, a line coming out of the east, getting blacker and bigger, soon in range over him; the first shot, and the splash of a fallen bird. Wet and cold days are recalled, when to lie low in the blind was misery, and even the excitement of watching a steady flight of birds could not warm him. Or perhaps, hidden in the ice behind a few decoys, he waited at a hole of open water, too cold to shoot, though ducks were plenty. Yet few men could appreciate better than he a blazing fire or the comfort of plain food and a rough bed. With winter's waning came the procession of wild fowl from the South, to tarry until spring; then the line far overhead leading north — his last glimpse.

The methods by which wild fowl are hunted vary in different sections of our country. Shooting over decoys is probably the most universal means. In those locations where birds are accustomed to the wiles of man, their cunning is a match for his skill, and his skill is great. They

know the points and blinds, and decoys do not easily deceive. Hence the greatest care in every detail is necessary. The gunner's place of concealment should be carefully prepared; it must closely resemble the surroundings, and be as inconspicuous as possible. In places where the slightest change would be noticed, sink boxes are often placed; blinds sunk below the surface level, on sand-bars or flat marshes. Used in places exposed to tide and high water, baled out and carefully banked up with sand when occasion requires, next to the battery it is most effective as a blind. For those birds whose haunts are the open bays and who shun the marshes, the battery is employed, and when well managed this means is the deadliest of all. Shallow water and quiet weather are necessary for its use. A hundred or more decoys surround it, placed to accommodate the gunner and bring in the birds at the most convenient angle, which for a right-hand man is the left side. In case ducks come in to the right, a quick gunner can generally swing into a position to shoot by throwing both feet out of the battery and turning to the right. In all kinds of duck-shooting the most successful gunner is the one who keeps out of sight all the time. This is specially true in shooting from a sink box or battery. While watching for ducks under these circumstances, the eye should be just above the level

of the box, and when the birds are sighted there should be no motion; the slightest movement often attracts attention and startles, while if a gunner remains perfectly still often no notice is paid to him, even though exposed. In shooting from blinds, if possible birds should be watched through the blind, and not over the top. It is a great advantage to keep the game in sight. In this way a gunner is more likely to know exactly the time to shoot. The habit of looking up and then drawing back is almost sure to attract the attention of a decoying bird and shy it off. As to when to shoot over decoys, it is often possible to judge more or less of a bird by the way in which it hails; flying low down, the chances of its decoying are much better than if the flight is high. On general principles, the man who lets a bird come in as close as it will, can choose his time and distance. No kinds of shooting are subject to more variations than duck-shooting. While under favorable circumstances, over decoys, it may be an easy matter to shoot well; when wind and storm are complications, the greatest skill is required. Few birds fly with more speed. Few thumps bring a greater satisfaction than that of a falling duck folded up from some point way overhead.

As to the question of guns. Some years ago the ten-bore was the popular gun for ducks, but

sportsmen have generally come around to the twelve as the most satisfactory, except in a few instances. The man who shoots consistently a twelve-bore gun will find it the best for all duck-shooting. There are a few places where overhead shooting is to be had at birds beyond reach of the twelve-bore, and eight and even four bore guns are shot. But excuses for using large bore guns can seldom be found, and they should be relegated to the past.

In many sections of our country, clubs fitted out with all possible comforts are the resort of the duck hunter. Provided with a trained gunner who manages the blind and sets the decoys, who watches and calls, duck-hunting is a different story. In one of the clubs near Boston, where duck and goose shooting is had occasionally, the blind is built as an addition to the club-house, and when any luckless birds are sighted a bell touched by the man on the lookout rings throughout the establishment, and members are summoned to the guns at any hour of the day or night. In the South the most desirable locations on the Chesapeake and on the bays of Virginia and North Carolina are occupied by clubs. Conspicuous among them are the Carroll's Island, the Narrows Island, and the Currituck clubs. In the days of canvas-back on the Chesapeake the Carroll's Island Club was one of the most famous in existence,

and the old records of ducks and ducking days there would fill many an interesting volume. Associated with these clubs is the Chesapeake Bay dog, a breed in which the old Newfoundland was marked. Few dogs possess the wisdom and courage of these, and when well trained they are unequalled as retrievers. Of a dirty sedge color, the dog lies close to the blind, motionless, but ever watchful. After the bird has dropped, he waits the word and then is off. Few cripples escape him. He follows a wing-broken duck with a persistence in some instances wonderful, judges the direction of the diving bird, and gradually closes in on it. When two birds fall, the wounded one is selected. Marsh grass cannot conceal from his nose a crippled duck. He knows the live decoys as well as you do. Even a wounded swan stands small chance with him. These are the traits a good dog possesses, but a good Chesapeake dog is rare. With all the facilities that can exist for the gunner, duck-hunting in the eastern United States is getting more and more to be an art. Wild ducks certainly seem to adapt themselves to circumstances. They have measured the range of modern guns and smokeless powder, yet their cunning certainly adds to the satisfaction of getting them. In the far West, where nearly all ducks exist in abundance and shooting is easy, the character of the

sport changes. There is more satisfaction in one Long Island black duck than a dozen Dakota red-heads. But wherever seen there are few more welcome sights to many sportsmen than a flock of wild ducks.

FROM PASSES

This method represents, more than any other, fairness and skill; it consists in waiting for the birds along the line of flight, and can be practised wherever the flocks take any particular course over land. The lakes and sloughs of our Western states offer the greatest facilities for pass shooting, although in the East in various places along the coast, where narrow bars or breakwaters lie between the feeding-grounds and resting-places, the same means may be employed. When the birds are obliged to cross these points in locations where there is much gunning, the danger is quickly appreciated, and they soar high up in approaching, making the shots long ones. In places along the New England coast this shooting can be obtained, the ducks flying from the larger bodies of water into the smaller bays and up the rivers to feed, passing out again in the evening, or, in the case of certain varieties, coming on to the marshes toward dusk to feed and spend the night. Occasionally the ducks are well out of reach of guns of ordinary bore and can

only be brought down with the heaviest charges. Stormy, windy weather alters the flight, and at this time they come low, within range.

In North Dakota pass shooting can even now be enjoyed as in perhaps no other country, yet here the devastation of the past few years is noticeable, and the wild fowl are no longer seen in the hordes of the past. It was near Sanborn, North Dakota, a few years ago, that the writer enjoyed a week's shooting of this character. There were four of us in the party, and our head-quarters was a farm some forty miles from the railroad. The hunting was done by driving over the prairie to the various lakes in the vicinity, where it was a simple matter, in a few hours' morning shooting, to reach the Dakota limit of twenty-five birds to a man. The first day's experience I shall always remember. The prairies of North Dakota now are largely wheat-fields, the stubbles of which, toward the end of summer, are the feeding-ground of thousands of prairie-chickens, so it was natural that the large road-wagon contained, besides ourselves, two bird dogs. We had spent the greater part of the day driving, stopping once in a while to hunt for chickens, with very fair success. Toward the end of the afternoon a good-sized slough, a short distance from the road, attracted our attention; the horses were turned toward the top of a knoll, and we

looked down on a sizable marsh, its edges surrounded largely by reeds and rushes. The sight that greeted us is beyond my powers of description, and for a minute we all gazed spellbound. About the shores we could see a little water, elsewhere none; the surface of that pond was one black mass of ducks, hundreds and thousands. Fortunately an old hand was along. As we started to get ready, he checked us, "Wait until we see the pass." Presently, successive flocks leading into the lake from the opposite side told their course. By this time we could wait no longer. The team was driven into a little hollow, and the man who "knew it all" was responsible for the promise it would stand. Then came the question of the dogs; "Tie them to the wheels and come along." We followed the shore, keeping just far enough back not to be observed, stopping now and then to look at that sight of ducks. Soon we were among the reeds and high grass of the farther end and could see the continuation of the slough in a little chain of ponds beyond. There were more birds than I believed could ever crowd into one place. We separated a few feet, forming a line across the most likely pass; there was no need of a blind; the grass hid us well. During this time several flocks had passed over within range, but not a shot had been fired; we were all getting ready.

I took off my coat and put all of my possessions in the line of cartridges on it. Pretty soon a flock of shovellers swept overhead and called forth the first shots. At the reports there was the mightiest splashing ever heard; the whole mass seemed in motion; a few seconds and they were on us. "Pick out the canvas and red-heads," yelled the man who had been there before. "Pick out nothing," hollered his next-door neighbor, as he fired both barrels into the air and loaded and fired again. It certainly was bedlam let loose. All I can remember about this particular moment is, that everybody was shooting as fast as he could load, and ducks were overhead all the time, continuous lines of them; the air was black; shovellers, teal, mallard, gadwall, every other kind of a duck that grows in Dakota, but somehow very few stopped. How long this flight lasted it isn't necessary to say, but our guns were so hot we could hardly hold them. In a short time there were fewer birds; small flocks, separated by breathing intervals, gave us an opportunity to get collected and straightened out. We attended to business better. A bunch of red-head, about the last left, appeared just overhead. The first man cut down his two, and the rest of us did up the flock. We picked up six. Straggling flocks of teal and shoveller, occasionally mallard, used up the last cartridges, and we gathered up the spoils. On

a pass where the shooting is fast there is no time to mark and pick up fallen birds at once, and as a result many are lost.

During all this fusillade our vehicle with its trusted pair had remained as still as any dead duck; but for some reason our approach changed their ideas, and to our utter consternation they were actually walking off with two dogs tied to the wheels, protesting. We ran, we yelled, we cursed, did everything to frighten a team that didn't need any stimulation. They broke from a trot to a dead run. Fortunately the dogs had broken loose. My last glimpse of that outfit was a small black spot on the horizon, going like "hell bent." The sequel to our first day's duck-shooting in North Dakota was one night in a haystack.

OVER DECOYS

No form of duck-shooting is so common as that in which decoys are used. The habit our wild fowl have of flocking together makes the wooden images, even in places where gunning is constant, irresistible. In our more popular resorts, however, wild ducks are wary, perhaps warier than ever, but there are few that do not sooner or later yield to the attractions of a decoy. Often, though, little defects in the decoys are noticed and incoming birds appreciate the mistake in time to turn off; hence the greatest care

should be taken in the making and coloring of the stool.

The best decoys are made of cork, carefully weighted and painted, sometimes provided with glass eyes, the paint on cork being less liable to shine and gleam in certain lights than that on wood, although for most practical purposes wooden decoys suffice. Many of our clubs go even farther than this and employ live decoys. Live ducks used with the wooden stool are always very efficient and allure the wildest birds. In a few Massachusetts clubs the use of live decoys reaches its highest degree of proficiency. Here live birds are actually let loose from coops, trained to fly about the lake, and return to the stand, bringing with them any wild relatives they happen to encounter. At the first suspicion of anything doing, a well-trained duck decoy lifts his voice and quacks — the louder and more often, the better. No wild fowl in the vicinity can resist. The wild birds reply and are answered; they turn, circle, and alight among their own. In Massachusetts ducks are not only permitted to alight, but are also persuaded to huddle up and get their heads together, with the result that often not a single begrudged bird escapes the fusillade, — a shooting custom excused on the ground that ducks are few and far between. On Long Island there are a few stands of live decoys, and farther south

along the coast the more important clubs regularly have their pen of geese and ducks. The difficulty of carrying stool, in many places out of reach of boats, suggested the practicability of canvas decoys. These are blown up like footballs and corked, their lightness and portability being an advantage; but they are difficult to weight down, and bob around considerably in any wind, and if the sportsman is addicted to the habit of shooting birds on the water, his decoys are liable to sudden collapse. On the marshes wire rods are sometimes used to support the dead ducks, and these answer admirably as decoys, the wire being slipped underneath the skin of the neck. In cases of emergency, various means are used to attract the birds; lumps of sod or bunches of seaweed, in places not much gunned, are often effectual. In certain localities where there is sea-shooting, strings of bladders are strung out from the boats. Flat decoys are seldom satisfactory for ducks, as the flock, circling around before it lights, detects the difference.

Considerable skill is required in setting out the stool. They should be placed at just the right distance from the blind; if on a marsh, in a pool of water, for the reflection then makes them conspicuous from afar. It should always be remembered that ducks come in to decoys best against the wind, and the stand of stool should be so

located as regards the blind that birds about to come need not be forced too close to the gunner, when they inevitably sheer off, giving a poor shot, but in such position that the decoying bird is at the easiest possible angle to shoot. Next to decoys the blind is all-important. Having selected the most favorable situation for it, the construction depends on circumstances. It should resemble closely the surroundings and be as small and inconspicuous as possible. In exposed places hay, grass, or seaweed are often available and useful; in winter, cakes of ice. If the location permits it, a pit can be dug and a box or barrel sunk. Numerous portable blinds have been suggested, of canvas or other material; but these usually fail to give much satisfaction. Of the various craft employed in duck-shooting, it is unnecessary to go into detail here. The principle of a duck boat depends upon whether it is to be used in shallow water on marshes and flats or offshore, where deep water and sudden squalls make a strong boat necessary. The craft for rivers and marshes should be light and low, with a flat bottom; these boats are generally decked over.

Points and the edges of marshy ponds are favorite locations for decoying ducks, and this method of shooting is in universal use along the bays of the coast and throughout the interior. The sounds off the shores of North Carolina

have always been, and are now, among the most famous resorts for water-fowl in the eastern United States. Most of the available marshes here are owned or leased by clubs. The Narrows Island Club, in Currituck Sound, happens to be the one with which I am familiar. This club-house is situated on one of the islands in the bay, a short sail from the mainland. I recall a few pleasant days spent here not long since. Our arrival was late one Saturday afternoon. Sunday is one of the three days of rest provided by law for the wild fowl of North Carolina. In the morning from the lookout on the roof of the house we scanned the bay with glasses. Wherever there was water there were flocks of geese and ducks. Hardly half a mile from the house a bank of white caught the eye, and six swan floated peacefully on the quiet water. In the pond a few feet from the club were a flock of fifteen or twenty mallard; until they rose it never occurred to me that they were not decoys. With such impressions I looked forward to the first ducking day with every anticipation. We drew first choice and took Brant Pond; breakfast was served in the dark, and when we reached the little sail-boat off the dock, a half-moon was the only light. Our one boatman and gunner stacks the decoys in the bow, and with them a crate with three live ducks. He sets up a small sail, and with the faint breeze of early

morning we drift down the channel into the bay. In places the little craft passes close to the shore, and every now and then the clamorous quacking of ducks, startled by the boat's dim outline, breaks on the air. The decoys in the crate quack back; presently a near-by honk tells of geese, and soon we see the dark line just rising from the surface of a pond close by, warned by the first streaks of light that it is leaving time. Now the bay broadens, and with a fresher breeze the small boat pegs along toward the island, the faint outline of which appears in front. Whistling wings, high overhead, are heard, and a flock of red-head in wavy line pass to their feeding-grounds farther south; soon another and several, keeping the same course. These sights and others make us yearn for Brant Pond; it is still a mile or more away; the boat seems just creeping. The law fixes the shooting hours as between sunrise and sunset, and the sun is not yet up. As we reach the marsh, a narrow channel into the grass lies just ahead, and through this our craft is pushed. It broadens into Brant Pond, and presently we find ourselves on the inner shore, close to the blind. A lone flock of black duck still linger well out of reach across the pond, watch proceedings a minute, and then leave. We carry our guns and shells to a jutting point where a clump of high grass marks the blind. A flat plank on

stakes serves as a seat, and we bring a box or two from the boat for our cartridges.

The decoys are being set; twenty-five or thirty wooden stool, mostly black duck and mallard with a few red-head and a string or two of broadbill, comprise our stand. They are arranged in two separate bunches, out far enough from shore to be conspicuous, and in such position that any bird decoying will come well to our left. Lastly, the live decoys are staked out. We have three, — two drakes and a duck. The drakes are placed just outside of the wooden stool; each is tied to a little platform driven into the shallow water; the duck is fastened near shore. By separating live decoys in this way, they are generally more noisy. Sunrise marks the hour, we are close on time, the expectations of the past few days have reached their height, and some of the countless flocks we have seen will soon be in evidence; but ducks are uncertain always and hereabouts well educated.

The hunted points and ponds are better known to every mallard than to the gunner; they know his office hours, and are particular about dropping in until late. We watch a small flock of ruddy duck diving in front, the only inhabitants of the pond. There is nothing else there, and nothing else comes. We begin to experience change of sentiment, anticipation is on the wane, not a quack or a distant honk to raise hopes; even the

live decoys have given up getting excited. Stories of when ducks were thick and a man did business all day, any day, begin to get monotonous. It is past noon, and the only result of the morning on Brant Pond is an appetite. We are beginning to discuss pulling up, but finally comes a break: a sudden sharp quack from our tame duck starts the other two live decoys. A single black duck is heading for the blind, way up, but not too high for a shot. He comes straight overhead and gets two barrels, one in the neck; the next second he smashes through the grass, our first bird. Soon a flock of mallard appear in front; they answer the decoys, circle once, then set their wings and come. One lights, three more hover close, four shots, two drop; the third sags off, hard hit. The next arrivals are two pintail; the white breasts and long necks mark them at a distance; they plunge in to the stool, but spring high as we rise to shoot, and both shots go underneath. For an hour a little flight kept up, mostly mallard and black duck. Three black duck drop in across the pond and swim up to the decoys. These are the last. The shot is a sunset gun. Fifteen ducks in all. As we leave the marsh, whistling wings proclaim beginning dusk. All overhead seems ducks; now and then quacks from the long grass mark the resting-place of mallard. The night residents of Brant Pond have come. My first day's duck-

shooting at Currituck comes to me as I write these lines. I have shot over many times the first black duck of that afternoon, and probably as often missed that pair of pintail.

IN THE WILD-RICE FIELDS

In a large part of our middle western country are shallow marshy lakes, surrounded by vast stretches of high grass and wild rice. These are the natural resorts of wild fowl; here the countless flocks, wearied by the tiresome journey from the north, gather with the first frosts of fall, to rest and feed and fatten, now in most of the old haunts a poor vestige of the past, but still in vast numbers. Shooting in these places is often without decoys and hence difficult, the birds sweeping over the marsh with speed unequalled. In such resorts formerly many ducks bred; at the present time the summer residents are principally a few teal and shovellers, with an occasional mallard. The great throng of breeding ducks now pass farther on to more northern sloughs. Early in September comes the first shooting; the birds are mostly teal and the young of the year, just able to jump from the grass a few feet in front of a flat-bottomed skiff pushed through the water. Many are killed at this time, and hardly any bird ranks higher for the table. Along the devious creeks that in

many places intersect the marshes, the pusher shoves his craft, with the gunner seated in the bow and ready. A swish of wings from the dry rushes, and he finds himself startled by a flock of blackbirds; a bittern flops from the grass, and with a croak protests against intrusion. Now a bend is rounded, and close to the bank, a few feet in front, sit half a dozen teal. Instantly they jump, the first shot misses, the second, steadier, breaks a wing, and the first bird of the season drops, a cripple; the shots start half a dozen flocks, and the skiff is quickly pushed into the grass. In a moment four birds cut by, and as they sheer off from the gun, string out in a line. The first is well led, but at the report, the last closes up his wings and falls with the splash of a dead bird. A few more shots at passing birds, and you push on. Soon with startled quacking a half-dozen black ducks spring into the air, leaving one behind, hard hit with the first, dropped dead with the second shot; and so on through the early morning. Occasionally the pusher calls in an uncertain flock, but most of the successful shots are at birds jumping in close range, for under these circumstances the speed of flight is not great. This method of duck-hunting belongs only to the early fall, before the young birds have learned wisdom from experience.

Later in the autumn these same resorts wel-

come the northern hordes. When October ripens the wild grain, countless thousands gather in the rice fields. On the larger marshes, any point on the feeding-grounds affords a blind. Early morning and evening are the moving times. With the first streaks of dawn you paddle along the reed-grown shore. The feeding-grounds are marked by the frequent clamor of resting birds. Now the loud quacking of mallard is answered by a flock overhead, and you see a faint line in the dim light and hear the swish of wings. Soon some ducks take wing, startled by the presence of the boat, and the noise and clatter they make in getting under way start hundreds. The air is filled with reverberating wings; you can hardly wait to reach the point where broken grass and sedge afford sufficient cover for the skiff. On each side is a considerable expanse of open water. It is now light enough to shoot if the birds come close, and hardly a minute before a dark line appears, looking black and large, against the yellow background of beginning day. They are closer than you thought, and are out of range almost before you break the silence of morning with the first shot. Frightened ducks fill the air, circle, and lead in all directions. A bunch of birds lighter than the others heads toward your point; alert at the first motion in the grass as you slowly raise the gun, they flare up into the air, all

in a huddle, and a well-placed shot stops two, — all, for the last one takes the second barrel as he sheers off wounded. They are sprigtail, the wildest of the aggregation. There is no time to waste; flock after flock move by, and for a time you hardly dare push out for fallen birds. Overhead, in front, and whistling wings behind cause you to turn and try a hopeless shot as a flock swings out of range. Mallard, black duck, widgeon, all are there; occasionally a few redhead, and some ducks of minor importance, but the bag is chiefly mallard. With sunrise the birds are on the wing and well scattered. As they pass by neighboring points of marsh, booming guns tell the same story; there is no safe place. The shots are few, and you make the most of them. A single mallard, high up, but straight overhead, is the last. The gun leads him a good four feet, and you hear the shot strike, a second before he doubles up and crashes through the dry grass behind, a fall that makes up for many a miss. Shooting under these circumstances is always difficult, for the birds are at top speed and all sorts of angles; yet the satisfaction of a clean shot is doubly great.

SHOOTING FROM A BUSH BLIND

In some of the hunting resorts of the South ducks are decoyed from bush blinds staked out

in the shallow water. These in many instances are built on the feeding-grounds in the summer and early fall, so as to allow the birds to become accustomed to them. A bush blind consists of a number of tree-tops driven into the mud, forming a screen of sufficient height to conceal well the skiff which is pushed in at the open end. A large number of decoys are then placed in front. Several years ago two of us spent a few days ducking on the James River, near Westover. Our host had placed at our disposal everything, from his house to decoys. We were in charge of a darky who knew all the wiles of Virginia ducks; his name was Wat Green, and no man, black or white, could equal Wat in the duck business. It was early Christmas morning when we were called to leave the comforts of bed for the cold outside. A cup of coffee and a roll served as a starter. I look back on that cup of coffee as the one thing that carried me through one of the most uncomfortably cold days I ever faced. Wat opened the front door and latched it without a creak; we passed out into the cold morning. It was blowing a gale and snowing, the first snow of the season; the day before had been mild as summer; the contrast wasn't warming. It was only a few steps to the landing where there was a large boat well filled with decoys, and a skiff which we towed along. Wat rowed, and we envied him. The cold that swept

the river with every blast of wind went to the bones. "We'll see canvas to-day shuah," but even the thought of canvas-back didn't warm up much. It seemed a long while before we reached the bay on the other side; this was covered with sheet ice. By some misfortune a single duck about now passed within shot of the boat, and by a still greater misfortune he was winged; for in attempting to finish him, between the duck and my companion and Wat, I was landed feet first in about four feet of water — a trifle high for boots. I can feel myself shiver as I recall it. There was no going back; the only thing to do was to go ashore and build a fire. Meanwhile Wat set the decoys in front of a bush blind near shore. Before he had finished, a flock of broadbill dropped in; this was the signal for getting started, and we soon found ourselves in the blind, bobbing around in a leaky skiff, left to the mercy of a northeast wind and a snow-storm. Wat went back to the fire and incidentally put out two or three decoys offshore. It was a day for ducks if not for anything else. We were scarcely fixed when over the wooded point in front a black line appeared; in a few seconds it turned into a flock of broadbill, and circling around the cove headed for the stool. There were twenty or more; they all came in and all went out, though somebody fired both barrels. Another flock came into sight from the same direction and presently were hovering

over the decoys. We both fired, and not a bird stopped. How many times this happened I do not know. My one recollection of this day was a continual flight of ducks. It was simply impossible to shoot. Choppy water and a leaky boat kept one of us busy continually. We took turns holding the skiff still while the other man fired. We tried holding on to the stake with one hand and shooting with the other. It was hopeless; the sleet and snow were blinding as we faced the wind. Wet cartridges stuck and the guns would hardly open and shut; but ducks there were, a steady stream, small strings leading over the point, coming with the wind, swooping by the decoys and dropping among the stool. The birds were mostly broadbill, occasionally black duck. From out a flock of mallard a single green-head circled in, and hovered, close in front, the first we had seen. "That mallard's mine," and gathering together the little strength left, I let him have both barrels to find I'd lied, — he didn't even leave a feather. As I remember, the next bird was a black duck. He didn't come in, but just manœuvred around about a gunshot and a half off. By one of the most unholy shots I ever saw, my cold partner in the other end of the skiff let him down; he fell with a broken wing. Wat finished him. There was no cessation in the shooting; we had probably in our crippled condition shot away fifty shells apiece,

and I believe could easily have tripled the number under ordinary circumstances. But soon came an incident which marked a bitter day with a bright line, and I see that flock of ducks as I write. There were six, and, as out of the storm they came, straight for the blind, the brick-colored head of the leader and his white back marked their nationality. They were canvas-back, and what's more, our first. The flock turned out of range of the stool, but the old drake didn't, he just plunged ahead and came right over us about forty feet up. I remember gripping the stake in front with one hand and just shooting straight up in the air; a mighty big splash told something had happened. I turned around and saw him, a little way off and right side up, but shot through the head. This was the finish; we could stick it out no longer. Wat picked up the stool; he had killed six ducks from the shore. The total bag was eight; our clothes were stiff with ice. Then comes the remembrance of lying on the floor in front of the blazing fire of pine knots in William Knox's house. A knock on the door, it was Wat. "Have some hot whiskey, sah?" I often think, in looking back on some ducking days, that much of the real fascination lies in the comfort and warmth that sooner or later relieve the misery of wet and cold.

BATTERY SHOOTING

Battery shooting is practised more or less all along the coast and occasionally inland. The battery, when well built and equipped, is the deadliest of all the different methods of decoy shooting. In fact, the destruction of ducks by this method has been legislated against in many of the resorts for wild fowl, in others limited to a certain number of days, and some states permit only residents this privilege; but the same provident states allow any one to become a native for five dollars — this is true in North Carolina. The battery is a coffin-like box so shaped that it conceals one or two men when lying at full length; it is provided with head and tail pieces of canvas to break the force of the waves, and weighted down so the sides are just above the level of the water. From this description it can readily be seen that moderately calm weather is essential for successful shooting. Painted lead color and carefully concealed by a hundred or more decoys, few ducks, however wild, will distinguish the counterfeit if their line of flight is near by. A good-sized boat known as the tender is required to carry a battery and the necessary stool. This lies off at a sufficient distance from the gunner to pick up his birds, and otherwise attend to him should emergency arise.

Long Island has always been a resort for battery shooting, more especially toward the eastern end of Great South Bay. It was here, several years ago, a party of us enjoyed a good day's shooting. We reached Bellport late in the afternoon, and went aboard a small sloop. There was a fair wind, and presently we found ourselves drifting at a rapid rate toward the outer beach. The change from city life to Great South Bay was a pleasing one, and as the chill of an October evening began to be marked on the water by the last glittering of sunset, we drew on our coats and jerseys. The bay was hardly ruffled by the faint breeze, yet the way oyster stakes disappeared behind indicated that a tide was running with us. As the dark line of ocean beach looms up, on all sides jutting points of sedge and grass, with outlying marshy islands, bring up thoughts of ducks. The keel grates and we anchor. A small boat is ready, and an old man pushes us ashore. It is only a step to the little weather-beaten shanty almost hidden among the dunes, in which a single room contains around its walls a tier of bunks. In one end a fireplace, blazing with dry driftwood, lights everything about. A big bowl on the table steams with oyster broth, and Uncle Dan can't ladle it out fast enough. Then some clam fritters and one cup of coffee all around. I think, with all the excitement and expectation

for the morning, there wasn't one of us who wouldn't have had that evening go on forever; but at nine o'clock Uncle Dan quit telling stories, and reached up on a shelf for an alarm clock, which he wound and set at three. We pushed our bench back and unlatched the door. It was a bright moonlight night, and the sound of pounding surf attracted us; we stood for a few minutes on the beach, looking out on the white streaks of ocean, when Uncle Dan's voice broke the spell, "Get to bed, boys." To turn in under these circumstances was an insult to the night, but Dan Petty was boss down Bellport way, and we turned in; no one of us slept, not a wink. We counted seconds, prayed for the alarm to ring, and meanwhile listened to the noises of the night. There was the sublime roar of the sea and Uncle Dan; when they came together, Uncle Dan drowned out the sea. He snored fast and slow, then tunes, and just honked on until three A.M. The relief of that alarm! Before it finished ringing, we were all moving around. "Don't wake up, boys; you've got one hour's more sleep." The longest hour yet, and then a breakfast of clam fritters and pancakes. It is a good while still before daylight when we start, a mist hangs over all around, and just a light breeze from the east predicts a good battery day. The sail is being hauled and the anchor weighed; a minute

more and the sloop disappears, leaving me with Uncle Dan. "We'll take the single box and go to Hospital."

Hospital Point lay to the east a mile, and we started for it in a good-sized punty, towing a single battery behind. It was slow going, but in time we were there. The only scenery so far was mist. We anchored the battery about two hundred yards off the point, on a shallow bar. It is weighted down close to the level of the water by heavy iron decoys; then we set the stool, a few behind, but the large body in front; and when the last decoy is thrown out, standing a gunshot off, it is hardly possible to realize we aren't in front of a big raft of ducks. "Get in; you won't wait long; I'll pick up the birds from the point beyond; keep in the box and keep down," and old Dan pushed himself out of sight. Left alone by my tender, I stretched out, and soon came to the conclusion there are few things harder than a hardwood floor, not a cushion or pillow or anything else, and finally I wrapped my coat around a decoy; this serves as a prop and helps a bit. It is still foggy, but a light breeze is rolling up the banks of mist, and except for this, it is light enough to shoot. Now the first birds of the morning come in sight, a great mass far out over the bay. Flying in undulating line, they appear high over the water, and the next minute are out of sight

in a fog bank. A number of little strings follow. This keeps up a few minutes, when a splash in front causes me to turn — a single old squaw sits among the stool, embarrassed and confused; I have no use for old squaws, and finally it paddles out, leaving with a grunt of disgust. Broadbill are leading now just outside, and soon a flock of four swerve off and head for the decoys. In the light of sunrise they look black and big, — right at the edge of the stool, on wings set, they slope in, an easy mark; and as the smoke clears only two depart. The reports resounding over the bay start a multitude of ducks; rising high, they break up into countless numbers of little bunches, always a promising sign. Presently eight come in and leave three — two as the flock swings in line, the third before they recover. A pair and then four more; broadbill seem everywhere, and come in thick and fast, so far all from the right direction, straight in front. A booming far to the east, four guns often at once, marks the position of the double battery, and a cloud of ducks in sight over the horizon in the same direction indicates the others are busy. The pleasant feature of my position is that the water is so shallow that I can pick up my own birds, and soon the limited quarters of the box are filled. With the exception of a single red-head, they are all broadbill. A large flock in front and I hurry

back; in a minute they are all over me; as I sit up ducks rise on all sides, and in the confusion depart without a shot. A pair of black duck come by the point toward the stool, a rare chance, and I move too soon; the birds were farther off than they seemed; but one, hard hit, turns off to the farther point, and I trust him to Dan. The steady flight has now decreased; yet every little while ducks hail the stool in twos and threes, and there is plenty doing. A long, black line far out on the water marks a bed of birds, and toward this the smaller bodies lead; before noon they are all assembled and the morning shooting ceases. I see Dan Petty shoving along the marsh. He has half a dozen birds on the deck of the punty, and the grand total is two dozen broad-bill, a red-head, and a black duck. Half an hour later we all get together aboard the sloop for lunch. This particular day's shooting was one of my pleasantest experiences in the battery. The number of birds killed was small, but they came in well, and few shots were missed.

In battery shooting, birds coming in from behind and on the right are very liable to escape a right-handed gunner, and if possible they should be decoyed from in front and to the left. Great South Bay is still famous for battery shooting; and, though cruelly shot, big bags are now made, but the Long Island sports-

man has long since been obliged to get along without the services of Dan Petty.

BRANT-SHOOTING

Brant are exclusively a coast bird, and never occur inland; they frequent the larger bays and sounds along the coast, but have favorite stopping-places on their flight to and fro from the breeding-grounds in the remotest corners of the north. Their spring flight differs somewhat from the fall — wintering in the brackish sounds of Virginia and North Carolina, when the first warm winds of March warn them of approaching spring, the immense hordes assembled here become restless, small bands separate, and striking out to sea begin their weary flight. From Virginia many pass direct to Cape Cod; some collect for a short time in the bays of New Jersey and Long Island.

Early in March the few brant that have wintered on Cape Cod begin to be augmented by relays from the south; these come thick and fast, so that by the middle of the month Chatham Bay sees them in thousands; their arrival has been prepared for; all of the farther bars have been fortified. In every favorite spot along their course sink boxes have been placed. Wherever a sand bar is exposed at high water it conceals a box. These are large enough to hold three men, and are supposed to be water-tight, but generally

require frequent bailing. Every care is taken of the sink box; at low tide wheelbarrows of sand and gravel are dumped around its edges to fill in the spaces washed away; sacks of sand are often stacked around it to serve as a solid foundation; gradually in this way a bar is formed which slopes up to the level of the box. This is surrounded by a large number of stool, a hundred or more, to which are added a few live birds, tied out in conspicuous places and generally connected by a string with the blind, so if circumstances require they can be forced to perform. At Cape Cod now large numbers of stool are very important, and live birds are absolutely essential.

As to the brant, constant persecution has made them, of all birds, wary, as wise perhaps as geese. They avoid the bars and blinds in spite of all inducements, and keeping together in vast throngs lay their course over open water. Many feed on the flats, dipping their necks down in the shallow water, but never diving; and hence their feeding depth is marked by their length. With the rising tide the birds are drifted from the flats and gradually float toward the shore, all in one vast aggregation. This is a critical time. The three men in the sink box lie low. Slowly and surely approach the mass of birds; the water is black with them. Constant discordant notes from the assem-

bly, honks of satisfaction, honks of suspicion, yet not a bird leaves. The closer they get to the sand bar where a sizable flock rests unconcerned, and a few live decoys every now and then flap their wings, the more suspicious they become. A few separate from the main throng and swim toward the decoys. With the utmost manœuvring and good luck, this flock of six is brought within range. The three gunners who have been twisted up in bow-knots for an hour get untied and let go. Brant have the habit, possessed by some other birds, of getting close together when they are startled, and the first two shots, if well placed, have probably attended to half the flock, and it is fair to presume the other half don't stand much chance with two whole guns left. With the reports there is such a splashing and commotion that Chatham Bay hasn't seen since the last high tide, and several acres of brant start out for safer quarters. This is the end for the present tide, and nowadays considerably more than the average end. On some few occasions, however, conditions favor the sportsman. Wind and heavy weather interfere with the regular brant programme. The birds, at the first indication of rising tide, become uneasy and restless; small numbers separate and little strings of four to ten lead up the bay. This is a day of days — they come to the blind, the

wavy line circles in over the decoys, hovers, and lights. Very few of the smaller flocks depart, three out of four, three straight, three out of five — it doesn't take long to run up a score. For a short time the flight is thick and fast, the birds pile in, but with high water comes a let-up. There are instances of sixty birds being killed in this way from a single box at one tide; but the average at the branting shanties, during the season now, is probably nearer nothing than six.

BRANT-SHOOTING IN VIRGINIA

Along the Virginia coast, reaching south to South Carolina, are a series of shallow bays, separated from the ocean by a narrow strip of land, their shores lined with marshes and marshy islands. Here is the winter home of the brant. The first flocks arrive early in November, and by December the large body has accumulated on the first resting-place since leaving the Arctic shores. At first the birds keep pretty much to the open channel and deeper portions of the bay; remaining in huge masses, they move to and fro from the feeding-grounds as the tide affords opportunity. These flats are covered in many places by patches of thin eel-grass, and this is their food. As the brant does not dive, it is evident low water is essential for its feeding. Long before the arrival, their coming has been anticipated.

About all the favorite bars and flats brush blinds have been built. These are composed of green cedar tops staked out early in the fall, forming a sufficient cover for a good-sized flat-bottom boat. At high water many of the blinds are entirely submerged, while when the tide is out they are exposed for a distance of four or five feet. With early winter come the first opportunities for gunning. For weeks the birds have been watched for the right chance, and now it is at hand. The weather for the past few days has been threatening, stormy, and rough. Finally a brisk breeze from the east promises the first good day. A flat-bottomed sloop lies anchored off one of the flats. Tied to her stern are two small dinks, stacked high with stool. For a week brant have been leading up the bay to this particular shoal, spending the time of low water on the bars, then moving out in vast rafts to the channel. Persisting wind, however, has broken up the masses of birds, and indications for the morning could hardly be improved. In the evening a party of gunners gather around the little stove, which barely warms the cabin. It is cold, and outside the wind howls, while every now and then comes a wild sound, a sound that stirs the heart of him who has heard it before. At times a perfect din, it seems close to the boat, but in reality is a mile or more away. Brant are gathered on the bar.

There is little sleeping; every man waits for the morning call. With the first light the disturbers of the night are seen, a long black line of bedded birds, quietly drifting bayward with the falling tide. Now the top of a blind, barely showing over the water, seems in their midst. It will be two hours yet before the blinds will be sufficiently exposed to hide the dinks, and there is plenty of time for breakfast. The brush tops grow bigger slowly, but finally the two small boats leave the sloop. They are broad and low, with bows decked over. Each carries about forty stool. A short pull over the flats, and every now and then a flock of small ducks leave the water, and an occasional belated black duck quacks a protest as he wings his way from the marsh. A far-off mass of broadbill rises high in the air, marks the horizon with a wavy line, then settles down with a roar of wings that is heard two miles away. No brant are in sight. The blind in front is reached first, and the stool are set. The task is a cold one. There is little mercy in the weather. But finally they are all strung out in a line to the left, so that birds stooling will come in against the wind in the best position. The dink is shoved into the blind. It fits exactly. The tops barely cover the deck. A crosspiece of brush hides the stern. The tide is still high, and it will be two hours yet before the bar is near the surface. The wind comes fresher,

with now and then a flurry of snow, which is somewhat uncomfortable but welcome. No better day was ever made for brant. There is perhaps half an hour of shivering expectation, but a certainty about it which is more or less warming. Finally a black line appears far out in the bay. It grows bigger, and there is no mistaking it. Now the *ronk-r-r-r-ronk* is heard. The gunner in the stern calls back, and the birds lead toward the decoys with excited cries. The wind keeps them close to the water, and as they rise it beats them back. There must be fifty in the bunch, and they are near the stool. Now on set wings they sail almost within range, but turn away just as the shot seems sure. They circle back of the blind; again set their wings and head for the stool; but, suspicious, sheer off and lead toward the farther shore. A second bunch appears from the same direction, taking the same course as the first. They circle about the decoys, and finally, about to turn, an impatient shot rings out, and a bird sags away from the flock, hard hit, to fall dead a hundred yards away. Soon line after line comes into sight from out over the bay, almost in military array. The blind now conceals the boat well, and the birds do not show quite the same hesitation about coming in. Presently twenty or more brant gracefully circle the decoys, and then sail up to within twenty yards of the guns. They

look black and big. Startled they rise together, their white breasts showing as they turn. Four quick shots; six fall. It is necessary to retrieve them at once if at all, and the boat pushes out. It takes fifteen minutes to round up the last, and half a dozen chances have been lost; but the air is still full of birds, and a flock comes in as soon as the cover is reached. A little to the right, and a hard shot, but one splashes and a second leaves the others. Four separate from a bunch and hover. All are killed. The boat is pushed out and back again, and only the birds dead close to the blind are picked up. Brant seem everywhere: leading in over the decoys, and at the shots turning back toward the bay, heading up in the direction of the bar, showing first black, then white, as the backs or breasts come into view; keeping up all the time an incessant noise. Shooting has been fast, and the dink has pushed out a dozen times or more for dead birds. A huge mass heave in sight — hundreds; there is just time to ambush the boat. On they come, straight for the stool; the air is black with them, overhead and on all sides. Both guns are emptied, and it rains brant. Nine dead, and several wounded mark the wake. The flight for a time is continual. The minutes out of the blind seem ages, but a falling tide saves further destruction, and the strings of birds no longer hail. They have

bedded far out in the bay, where they will rest in peace until the next combination of an east wind with an ebb tide. Now low water leaves some of the stool almost dry on the bar; it is possible to wade out and pick them up. As the dink is headed for home, the bow is piled high with brant, some forty odd.

DUCK-SHOOTING AT LONG POINT

Among the most famous places for wild ducks at the present time are the marshes on the north shore of Lake Erie, owned by the Long Point Company. Long Point consists of a peninsula some twenty miles in length and from four to six miles wide, making a shallow bay along the lake. This narrow strip is almost a continuous marsh, broken up everywhere by ponds, its edges bordered in places with woods. Through the summer the marsh is the breeding-ground of many black duck and teal. Mallards and shovellers nest there more sparingly. It is a satisfactory fact that since spring shooting has been abolished the number of ducks here has increased surprisingly through the summer. Early in the fall, blue-winged teal and black duck are most in evidence; but there are also wood-duck in some quantity, although here, as elsewhere, the wood-duck has disappeared markedly in the past few years. With the first cold days of October, the summer residents begin

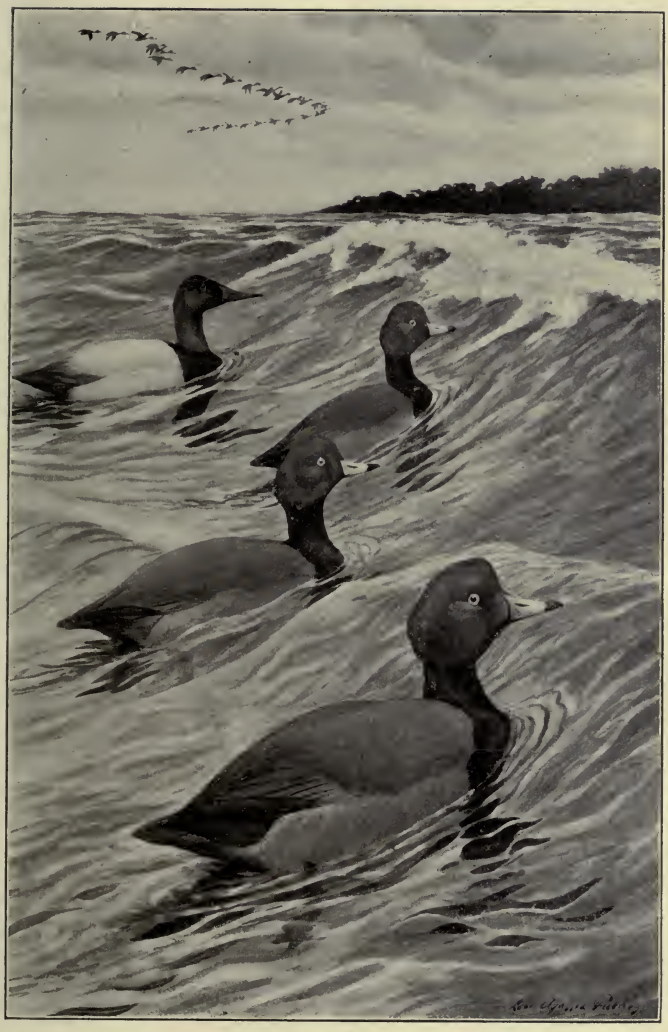
to be augmented by the relays from the north, and by the last of the month the shooting is in its prime. A few hours from Buffalo lands the fortunate member of this club on a dock in a small Canadian town, where a steamer is in readiness to transport him to the club on the other side. It is perhaps eight miles across, and almost from the moment of leaving the sights on all sides make him yearn for what is to come. Flocks of redhead and canvas-back rise from the water; a raft of broadbill leave their resting-place in the bay, to pass out of sight in undulating line. Every now and then widgeon are in evidence, soaring high as they take flight. Ducks on all sides make way for the craft, and the distant booming of guns away off on the marsh tells what is going on beyond. The little mark on the low line of land, which at first appeared a mere dot in the distance, has taken on proportions, and after a sail of an hour and a half a collection of low buildings appears in front of the steamer. In a few minutes more she ties to the dock, and bags, baggage, and sportsmen are unloaded. It is too late in the afternoon to shoot, but there is much in the way of preparation. A warden shows the individual his cottage, and ushers him into a room warmed by a blazing fire. Everything is in readiness. Before the trunk comes a "punter" is on hand to help in straightening things out. He unpacks the guns

and, after an extra greasing, puts them in the rack, unlocks the cartridge room, and fills the "kit" with some three hundred shells. The lucky sportsman who is to dwell in this spot for two weeks gets out of travelling clothes and proceeds to ask all manner of questions, which only serve to make him more restless and uneasy than he was before. He walks out. A wooden walk, built high on spiles, leads to the administration building. On the marsh side of this platform are some dozen or more cottages, all of them built out of the reach of high water. In front of each is a boat-house, with its duck-house on the side. One or two of these well filled bear evidence of good shooting. About the dock some hell-divers dip up and down. A gunshot off in the creek, a flock of broadbill feed undisturbed. The very atmosphere suggests ducks. A winding stair leads to a lookout on the top of the administration house. From here a view is had of portions of the neighboring marsh. A large body of water in front is the Island Pond. Even to the naked eye flocks of duck are apparent on the water. With glasses it seems to be all dotted over, though most of the ducks turn out to be mud-hens. Against the farther edge is a line of birds easily made out; their light backs mark them as canvas-back, and in the light of sunset they shine. With the last rays of day the new arrival to this duck paradise looks out on the

marshes and ponds, and keeps looking. There is nothing now until dinner. At seven the bell rings, and he finds himself face to face with a venison steak and a roasted black duck. A white pintail and a white muskrat are among the interesting adornments on the wall of the dining room. Two pair of deer antlers, locked as they fell, hang in the hall. Records of duck-shooting in muzzle-loader times are on file, and, strange to say, many of the recent ones are better.

With the morning comes a clear, cold day and a northwest wind. Club rules prohibit the disturbing of the marsh before 9 A.M., so there is plenty of time. Occasional flocks of black duck and teal rise up from the ponds in sight of the house, and settle down again just beyond. The punter is getting ready. He picks out some thirty or more decoys, mostly black duck and mallard, throws an armful of dry grass in the boat, brings the guns and ammunition, and lastly the lunch pail. The craft is a light round-bottomed boat; and after the gunner has made himself comfortable in the bow, with a push it glides off. Down the creek a half mile, and the punt is turned through a little cut into the marsh. A number of mud-hens have been disturbed, and occasionally black duck have jumped from the sedge in range, but no shot is allowed en route. The narrow ditch broadens into a pond, and hundreds of ducks rise

as the boat appears. Stakes on the other side mark the course, and through a continuation of ditches and creeks the punter shoves. Ducks are everywhere, — jumping before the boat, circling about the marsh, starting up other flocks, then dropping down, loath to leave their resting-places. Now the creek leads into a larger pond, its surface marked with patches of marsh grass and wild rice. A roar of wings, and a perfect multitude of ducks take flight, joined, as they leave the water, by smaller flocks. This is Pearson's Pond. At its farther edge a small strip of sedge is surrounded by quite an area of open water, which, with a northwest wind, makes a lee. Here the punter sets his decoys, then shoves back into the grass. There is no need of a blind. A few quill reeds cut and stuck in front of the bow make a complete cover. Before everything is ready comes the first shot. Four black duck, high up, answer the call, and dropping into range circle in against the wind with wings set, then jump high in the air as the mistake is realized. One drops, the next barrel misses. The morning stillness has been broken. At the report thousands of ducks rise from the ponds and marshes. A gun sounds off to the east, and others toward the club, but there is sufficient to attend to on Pearson's Pond. A flock of six, in which a green head marks a mallard, are hovering over the stool. The mallard and a black



RED-HEADS AND CANVAS-BACK

duck part company with the rest, and before the gun is loaded is a chance at a single duck. A dozen more are almost in range. Two cut in, and one stays. The flight for a few minutes is steady; then the birds seem to have risen higher, and do not decoy as well. Guns on all sides in the marsh keep them moving. A flock of something different now flashes by, and a dozen hooded mergansers dart over the decoys. A pair of green-winged teal light; and as they stop, a double folds them up. Every few minutes black duck, in twos and threes, sometimes a small flock, call forth shots. This shooting lasts until noon, and then comes a brief respite. There is an opportunity to look about. Some hundred yards off are the dead birds, drifted against the edge of the marsh. There are forty odd, and a number of cripples have crawled off; not once has the boat been pushed out. Lunch seems in order, but it is cut short by another little flight. Three or four more teal are bagged. A shadow over the decoys, and an eagle swoops, deceived by the wooden ducks. A scream tells his fright, and he lifts himself up out of reach. With afternoon comes more shooting, black duck mostly, and some teal. One of the last chances is a single black duck high up, and going with the wind; but it smashes through the quills at the shot. Sunset is near at hand, and Pearson's Pond is about an hour from home. The punter takes up. Between

stool and ducks, quarters in the punt are crowded. The gunner realizes, in addition to the delights of that day, a lame shoulder and an appetite. Sixty-seven birds, among them twenty-six brace of black duck, are hung in the duck-house.

In the past season red-head have figured largely in the bags made at Long Point, but the marsh ducks generally predominate, and black ducks head the list. In one of the larger ponds canvas-back are occasional visitors.

CANVAS-BACK SHOOTING IN ONTARIO

In the past few years, in certain parts of the Great Lake region, canvas-back have appeared in considerable numbers, and it is an interesting fact that a marked increase of these ducks was noted in some localities at a time coincident with their disappearance from the Chesapeake. In some of the shallow bays of Lake Erie wild celery is found, and it is here the birds are most abundant. The first flocks of canvas-back appear early in October, and keep pretty much to the open water, spending most of their time in resting and feeding, occasionally moving in large bodies. By the end of the month all the flocks have congregated, and the canvas-back season is at its height. Battery shooting is not legal here, and the gunning is done almost entirely from skags. A skag is a low duck-boat, strongly built, decked over in such

a way that it is well fitted for the rough water and sudden squalls that are common in these regions. Painted water color, the craft is inconspicuous, and a slight ripple makes it still more so. It is used in two ways, either anchored within range of the decoys or some two hundred yards off, to be drifted on to the stool when opportunity offers. Early in the season the ducks do not object to the presence of the skag in the decoys, and this is generally the first method of shooting. But canvas-back quickly become wild and soon shy the boat, even when well surrounded with stool. Drifting on to the birds, when done as it always is by one man, requires no little skill. The skag is anchored some distance to the windward of the decoys, and a buoy fastened to the anchor line. The gunner, provided with a short paddle, lies full-length in the boat. The stools are so set that there is a small area of open water in their midst, and a hundred or more are thrown out. Both canvas-back and red-head have the habit of swimming together after stooling, and it is the theory of gunners, that if open water is left in the centre of the mass of decoys the ducks will swim into this instead of away from the stool. The birds of necessity are allowed to light; then the gunner without raising himself detaches the buoy, tips the skag gently by leaning to one side, and thus makes a more effectual cover. The

craft is now gently paddled by one hand within range. A little breeze facilitates greatly the shooting, as it conceals more efficiently the boat, and forces the birds to rise toward the gun. The gunner is tended by a large boat, which lies off to the lee, ready to render quick assistance in case of emergency, and to help in picking up dead birds.

This shooting is local, and used principally by market gunners; but in a few instances where sportsmen have attempted it, they have been surprisingly successful. In the bay on Lake Erie, where skagging first came under the writer's observation, there were two market gunners who were specially skilful, and the account given below is almost word for word the one given him by a gunner who has the reputation of being the best shot on the north shore. The total day's bag of one hundred and twenty-four canvas-back duck was made beyond the slightest doubt. "It was late last October. I had been out in a skag for a week or more, with poor luck. Birds were plenty, but there had been no wind, and the flocks were not broken up. Finally, a two days' easterly blow set in, and we tried them from the west end of the bay, about a mile offshore. Birds had been leading to the west the day before. It was about sunrise when all the stool were set. I took the skag and anchored off to the windward of the

decoys a couple of hundred yards. My brother tended the sloop. There was some little sea, and a breeze from the west. We put up a big bed of canvas-back near the spot, but it was an hour or so before any came in. Then a steady flight kept up all day, in small flocks of from six to ten. A flock of six was the first to come into the stool. They dropped in, and didn't seem to want to rise. I worked up within forty feet of the bunch, killed three on the water and the rest in straight shots, with a pump gun. I picked them up and got a shot at two before I went to my anchor, dropping one. The birds came in like this all the morning, and I didn't go down on the decoys once and get less than three. Most of them gave me a shot on the water. The best scoop I made was on a flock of fifteen: only one got off; eight on the water, three as they rose, three more circled and came back after I reloaded. It was blowing harder all the time, and decoys began to drift. About four o'clock the sloop came, and we 'took up.'

"There were fifty birds on board and seventy odd in the skag, all canvas-back. I didn't shoot broadbill, and there were no red-head flying. That was the best day last fall, and the best score I ever made."

CHAPTER II

DUCK-SHOOTING (*CONTINUED*)

RIVER SHOOTING

In many parts of the United States it is possible to get good duck-shooting on the rivers. This is the case in various parts of the West, and especially the South, where sluggish streams wind through brush and brake. For this manner of ducking, a low flat-bottomed boat is essential, and should be made as inconspicuous as possible by means of sedge and grass piled in the bow. If managed by a single gunner, he must be an expert sculler. Usually one man paddles another, keeping the craft close to the shore, noiselessly rounding a bend within easy range of the adjacent bank. With loud quacking, the startled birds spring into the air from a wooded pool, and a flock of mallard offers an easy mark. An old green-head falls at the first shot, and his companions, soaring high, wend their way down-stream. Every little while, from the sloughs alongshore, where grass and thick weeds afford cover and a feeding-place, ducks jump within range. They are mostly mallard, though wood-duck and teal are

not wanting. Birds, under these circumstances, are frequently surprised by rounding quick turns in the river; the shooting generally is easy. Sometimes the size of the stream is such that the gunner can walk through the cover lining the sides and shoot as the ducks rise. In the spring of the year vast tracts of woodland along the larger rivers of the West are flooded, and immense numbers of mallard, and to a less extent the other varieties of ducks, frequent the inundated woods. Under these circumstances a few decoys help out the shooting.

In northern Mexico, last year, I enjoyed a novel day's duck-shooting. We started on horseback, in the early morning, from Laguna, with a Mexican boy to care for the horses. Here the country is one vast arid plain, a continuation of the desert plateau of Arizona and New Mexico. For nine months of the year rain is unknown, and in the spring the only water is found in the shallow mesa lakes, or, rarely, in arroyos, which are river beds cut deep in the soil by the heavy rains of the summer, and at this time well filled with water. At the cessation of the rainy season these rivers quickly run dry, leaving a deep channel. In the few places where water remains in these arroyos, it is resorted to by hundreds of ducks. The river near Laguna, in the spring of the year, is a mere ditch, in places almost dry,

yet ducks were in plenty. Occasionally a stagnant pool broadened out the banks; these were perhaps twenty feet high, so steep and narrow it was possible to walk a few feet from the edge without even seeing the water below. We rode along the plain, yellow with dry, wavy grass, dotted as far as the eye could reach with cattle, for the cattle, like all other living things, are concentrated near water. It was a still, bright day, characteristic of a desert country. For a short distance we travelled away from the stream, expecting to follow it a little farther from the ranch. Almost before we had realized it was near, a flock of gadwall rose up, as it were, out of the earth. Quickly handing over the horses to the Mexican, we crept along the bank; a quack just ahead and beneath us, and in another minute we found him, an old greenhead, in a puddle all by himself, right under our feet. He sprang into the air, and startled as he did so a flock of gadwall. They offered a perfect shot; two dropped, and instantly ducks rose out of the ground in scores; teal, gadwall, shovellers, a few sprigs, and mallard. For a short time the shooting was fast, birds passing overhead back and forth, following the course of the arroyo, suddenly dropping down out of sight far ahead. Between us we picked up perhaps a dozen, gadwall and teal mostly, occasionally a sprigtail and a widgeon; then we mounted and rode on, strik-

ing the arroyo half a mile beyond. In a short time our capacity for ducks was exhausted; we had almost more than we could carry on horseback, and we turned toward home. It was very interesting to follow along this weird place, and see how close we could get to unsuspecting birds. In one instance I watched a flock of twenty or thirty gadwall and teal nearly half an hour, hardly more than thirty feet from the spot where I lay in the grass, peering over the bank. They preened themselves, unsuspecting, and dabbled in the shallow water, occasionally uttering contented notes, but, at the slightest motion, were alert and ready to spring. In another instance I noticed a pair of ruddy ducks in a small pool scarcely a foot in depth. It seemed to be a good chance to force a diver to his wings, and I ran down the steep bank almost on to them. They just settled out of sight in the water, and never appeared. How they ever dived out of that puddle is beyond my understanding, and my esteem for a ruddy duck's sleight of diving was greater than ever. It was early afternoon when we wended our way back to the ranch, where a pitcher of coffee and a plate of tortillas went but a little way toward appeasing a Mexican appetite.

ICE-HOLE SHOOTING

In various parts of our country, with the first approach of winter, many wild fowl are loath to leave, and remain until the last open water freezes. Throughout the West the larger lakes and rivers afford shooting from ice-holes, — along the coasts, the bays, and harbors. There is a degree of discomfort, not to say actual danger, about this shooting that does not commend itself to the sportsmen as highly as other methods. Then too, birds, if long limited to these small areas of open water, grow thin and poor; but a duck is a duck, and probably this fact has not deterred many gunners from taking advantage of any helplessness. While all varieties of ducks frequent open water under these circumstances, the species most commonly associated with freezing weather are the golden-eye; they thrive and keep in good condition to the last. On an occasion I saw a single golden-eye in a small ice-hole, under one of the bridges near New Haven; the bird flew as we drove over, but at once returned, a fact that goes to show the tenacity of birds for these places when forced by circumstances.

My own experience in ice shooting has been limited. In the severe winter of four years ago the harbors all along Long Island Sound were frozen

over and where the current was strong, in many instances, areas of open water existed. One of these holes, several acres in size, was frequented by a large number of broadbill, and here on several occasions I had excellent shooting. It is always important, in this method of gunning, not to fire into the birds when all are bedded together on the water. The large flocks should be allowed to leave, when they quickly return in small bunches, and if care is used in resting the birds, the shooting will continue good. When offshore, the holes must be approached with care; and for this purpose white boats are used. These should be decked over and light. Often a sled is useful in carrying them over the ice. The blind is readily made of ice and snow, and a few decoys suffice. There is always a chance of accident from breaking through treacherous ice, and the surroundings are not the most desirable for calamities of this sort.

SEA-DUCK SHOOTING

Sea-duck shooting is hardly to be compared for sport with other kinds of duck-hunting, and yet on the New England coast the scoters and old squaws are regularly killed, and to the natives along the shore have a certain amount of value. They are not edible in the market sense, but many a Connecticut longshoreman is glad of their meat and the feathers are regularly saved.

Frequenting, as they do, the deep water and rocky shores, the shooting differs to a certain extent from other ducking methods. Points and rocky islands near their feeding-grounds are often used to decoy them from. As a rule they readily stool, but when much shot can become as wary as many other ducks. Any dark decoys suffice for scoters; they come to the wooden ducks in rather an awkward way, often so low down as to plunge into the water before the gunner fires. On seeing the mistake the birds swim off, or sometimes dive, taking wing when at a safe distance. Old squaws are faster, and afford better shooting. The general disposition of all these ducks, to fly low, is made the most of in line shooting. This is employed regularly on Long Island Sound. Anywhere from ten to twenty gunners anchor their boats in a line at intervals of a hundred yards or more across some harbor or off a far point. The birds do not change their course, but keep straight over the boats, coming with all available speed, often bunching up as the gun is raised. Under favorable circumstances the shooting is thick and fast, and reminds one of a bombardment, the heavy guns resounding and reverberating along the shores for miles. The ducks usually shot in this way are the several varieties of scoters, — coots as they are called locally, — old squaws, and in some places eiders (the

ALONG THE MARSH

eider is not uncommon off Massachusetts), rarely broadbill and the wilder ducks. Very often amusing instances happen in line shooting; a bird, bewildered by successive shots, sometimes passes over the whole line of boats, and is missed in turn by one after the other. In one instance I saw a white-winged scoter reach the end man, after having called forth a shot from every boat; but at the last crack the bird doubled up and the gunner let out a yell of triumph which was short-lived, for the falling bird struck him square in the stomach and came near putting him out for good and all. It was a case of an unexpected double.

This shooting is much facilitated by attaching the anchor to a buoy, and tying the boat to this, thus avoiding lifting the anchor whenever a bird is to be picked up. On the Connecticut shore of the Sound, the Thimble Islands used to be, and are at present, a favorite spot for line shooting, and many a ducking party has the old Money Island hotel entertained.

THE DECREASE OF WILD FOWL

Between 1870 and 1875 fifteen thousand ducks were not uncommonly killed on Chesapeake Bay in a single day. Here in February and March it was possible to see red-heads and canvas-backs in rafts miles long, containing countless thousands of birds. In the old days, Baltimore was the

headquarters for most of the sportsmen, and the famous locations for shooting were Carroll's Island, Spesutia Island, Maxwell's Point, and Benjies. Formerly the eastern shores of Chesapeake Bay, from the Sassafras River, through Pocomoke Sound, and down the Bay, and on the western side from Baltimore to the James River, were favorite resorts. What stories of ducks and duck-shooting could these places tell! Wild fowl up to 1860 had not been much hunted in this country, and during the Civil War were unmolested. From 1865 began their destruction, which has been steadily increasing since, with a result inevitable. In twenty-five years the greatest natural home in the world for wild ducks has been nearly devastated of its tenants. The past few years have shown some betterment in the shooting there, and, with care, it may still improve, but the vast hordes of the past will not return. Inland bodies of water, extending through the Middle West to the mountains, tell the same story. What sights were once seen on the sloughs of Indiana, Illinois, and Minnesota! Now, in many places, the numbers left, an insignificant remnant, bear evidence of the past. After the large game had been destroyed and driven off, the small game was taken up, and the past twenty years have decimated the wild fowl almost beyond conception. Practically unprotected, shot from their first

coming in the fall to the end of their stay in the spring, the result has been inevitable. Many of the most famous resorts are devastated, and the existing haunts exposed to such incessant persecution that local extinction is threatened unless prompt measures of relief are afforded.

Excessive shooting can be assigned as the prime cause of destruction, and under this head comes, first of all, spring shooting. Until recently, throughout all of our Western states and adjacent Canada, wild fowl have been shot until May. At this time they are preparing to breed, some actually nesting, and it can be readily seen that destruction under such circumstances bears directly on future supply. Birds at this time are usually thin and hardly fit for the table, yet the market gunner gets his price, and the ruthless sportsman runs up his score. Until within the past few years the suggestion of abolishing spring shooting has been received with considerable opposition; it was argued that over a large tract of country the only shooting was at this time. The claim was also made, and more reasonably, that unless spring shooting was forbidden in all Western states, and along the entire migratory course, legislation in a single state would have but little or no result. The effect of stopping spring shooting, even in isolated states, has been attended with such satisfactory improvement in the fall

shooting, that sportsmen are now universally convinced of the absolute necessity of protecting our water-fowl at this season. In the United States, the Western states along the northern border are all breeding-grounds for water-fowl, and it is here protection is most essential. In North Dakota, Minnesota, and Wisconsin legislation prohibiting spring shooting has been attended with remarkable results in the comparatively short period of its existence, and, in many instances, market gunners admit the benefit. In the upper peninsula of Michigan the open season closes January 15; in Minnesota, January 1; in Wisconsin and North Dakota, January 1; in Idaho, March 1; in Ontario, December 15; Newfoundland, January 12; California, North Carolina, British Columbia, and Nova Scotia have a close season in March. In most of the other states the close season begins later. In Ontario, a few years since, the marshes were almost devoid of breeding ducks. At the present time thousands of black duck, mallard, and teal are seen nesting. This same statement can be easily true elsewhere. Recently duck-shooting in Connecticut has been prohibited after April 1. The law has been in force for one year. Last spring, in many of the harbors of Long Island Sound, there were more ducks than had been seen in years, a fact specially true of the broadbill. There is a strong objection

in many of the Southern states against abolishing spring shooting. Its advocates claim that at the time of leaving the bays and rivers of the South, wild fowl are still in flocks and unmated; that they are far from the breeding-grounds. As a matter of fact, this protection is more needed in the South than in the North. In the early spring the vast hordes of migratory wild fowl are south, not north. In many instances they are mated, though still in flocks. If there is any reason for protecting wild fowl in the North in April, the same reason holds good for their protection in the South during March. Another fact, that perhaps many of our sportsmen do not appreciate, is that numbers of our water-fowl actually breed in the South. The southern variety of black duck, the blue-winged teal, and the mallard, all nest farther south than has been supposed. It is the duty of every man interested in sporting to use his influence against spring shooting. The effect on our wild fowl, of a universal protection at this time throughout the United States, would be surprising even in the following fall; if this could once be realized, there would be few sportsmen and market gunners who would not sanction it, even from selfish motives.

Another cause of the destruction of our water-fowl, that can be to a certain extent corrected, is too large bags by sportsmen. It is only on occa-

sions, in many places, that circumstances favor the gunner, and many a conscientious man feels he is justified in taking every advantage. But if our wild ducks are to be preserved, even in present numbers, self-sacrifice is necessary. In North Dakota a law restricting each man's portion to twenty-five birds has gone a long way to prevent the wanton destruction of game. Rules restricting the quantity of game killed have long been in use by many clubs with most excellent results, and state legislation to this same effect, though perhaps difficult to enforce, would undoubtedly be of benefit.

Market gunning has been responsible in many instances for utter destruction of game, and the high prices paid in the East for varieties of ducks most excellent for the table have made it possible for the pot-hunter to thrive. The result has been a foregone conclusion, and the most famous resorts along the Atlantic Coast have been stripped of their wild fowl. With market gunning go hand in hand all the illegal methods of killing, — shooting at night, the use of large-bore guns, in short, any possible means to destroy game. With the present facilities for cold storage, the market capacity is unlimited; this evil, however, could be effectually obviated, and by preventing the sale and storing of wild fowl, probably more would be done toward actual protection than by any other

means. In many of our states the exportation of game has been prohibited for several years, and for this law North Dakota is again conspicuous. The effect has been that the largest area in the United States for small game has been saved from market gunning. Exportation laws are readily enforced along all railroad lines, and are a practical means of protection.

Excessive shooting has been checked in sections of the South by establishing close days, — three days of the week have been set apart as days of rest for wild fowl, with the result that better shooting is had in the four open days than was previously had in six. The control of shooting lands by clubs has also had a protective influence in many localities. Strict club rules, judiciously enforced, have gone far toward bettering existing conditions; in this way night gunning has been almost done away with in sections of the South. Too destructive methods of shooting should be legislated against, especially battery shooting, and any means by which large flocks of wild fowl can be approached while resting. The repeating shotgun comes under this head. The protection of parks, extended in some instances to large game, is just as efficient in saving the destruction of birds. The great benefit of the Yellowstone Park stands out as a conspicuous example of this; all of the ponds and sloughs here are occupied by

thousands of breeding wild fowl, as tame in many instances as domestic ducks and geese. These birds are as quick to appreciate protection as large animals. In many of the zoölogical gardens abroad wild fowl are regular migrants, and this disposition has been noticed to a small extent in the New York zoölogical gardens, where wild ducks have often remained for some time in the companionship of captive relatives. No man can see this trait of our wild fowl — to make the most of all he offers them in the way of preservation — without being impressed.

To sum up, the imperative need for wild-fowl protection at the present time is a universal law throughout the United States against spring shooting. Game should be exposed for sale in markets through short seasons, if at all; storing of game should be absolutely prohibited; state exportation should be prevented; and there should be an individual limit to the number killed.

THE RIVER-DUCKS

(*Anatidæ*)

When the sportsman thinks of "ducking," some of the birds of this group are sure to pass before his mind, for to it belong the mallard, black duck, baldpate, teal, etc. It is the largest family of the *Anatidæ*, containing about fifty species, which are scattered over most of the

world, though more abundant in the northern hemisphere. They differ from the mergansers in having broad and flat bills with a series of transverse grooves, instead of "teeth," on the cutting surfaces: these grooves are of service in straining out the water from the grasses and other vegetable food which they procure when swimming. The absence of a membranous lobe on the hind toe separates them from the sea-ducks and the mergansers, and their feet and palmations are smaller than those of the former. Their necks are rather short, and, as a rule, the heads of the adult males without a crest. In many of the species the males have a very elegant plumage, as the wood-duck, differing from the plainer females, and most have a bright metallic patch of feathers on the wing. Frequently the male has a summer moult, in which he assumes a dull plumage, much resembling that of the female. This lasts while the wing feathers are growing, and is probably a great protection to him during the days or weeks that he cannot fly; but early in the autumn he acquires again his striking dress.

The flight of all is swift and strong, and has been thought in some species to reach a hundred and fifty miles an hour. They spring from the water at a bound, and are instantly under way. Frequenting by preference fresh water, the river-

ducks are not uncommon on the bays of the coast in the migrations and in winter, usually in small flocks, and associating to some extent with the sea-ducks. They feed in shallow water, not diving, but thrusting their head and neck to the bottom, and tipping up the body, while they tear off the stems of the water plants which are their chief subsistence. Their flesh is sweet and palatable almost without exception, although if they are forced to a diet consisting largely of shellfish and crustacea, it may become rank. The females perform all the duties of incubation and care for the young when they are hatched, but in many species the male takes much interest in his family. Some of the most interesting and beautiful members of the water-fowl belong in this group, such as the mandarin duck of Asia, the shoveller, with a long and spoon-shaped bill with the lateral strainers remarkably developed, and the pintail, with the middle tail feathers very long. Most breed on the ground near the water, but some, as the wood-duck, nest in hollow trees, and the true sheldrakes in holes in banks. This latter fact is taken advantage of by the inhabitants of parts of Denmark, who dig artificial burrows for the sheldrakes, sometimes with several laying compartments radiating from a single entrance. Each breeding-chamber is covered with a tightly fitting piece of sod, and through this opening the fresh

eggs are collected daily, six being left for the bird to hatch, and once the downy nest itself is taken. The muscovy duck (*Cairina moschata*), a large and handsome species which inhabits tropical America, has been recorded from Louisiana and Indiana, but as it is frequently kept in captivity, mating with the domestic ducks, it is believed that these specimens are not wild birds. The male is a large bird, measuring nearly three feet in length, and the female two feet. On the sides of the forehead of the male are rose-red caruncles; the head, neck, and lower parts are brownish black, the upper parts metallic blackish green glossed with purple, and the wing-coverts white. The female has a much duller plumage, entirely brownish black, except for a white feather or so on the wing-coverts and a greenish metallic lustre to the upper parts.

MALLARD

(*Anas boschas*)

Adult male—In fall, winter, and spring, head and neck, soft, brilliant, metallic green, showing purple and bronze reflections in different lights; a ring of pure white around lower neck, interrupted on the nape; upper breast, dark chestnut-brown; wing-coverts, uniform brownish gray, the last row tipped with black and with a subterminal bar of white; speculum, metallic violet, with a subterminal bar of black and a terminal one of white; primaries, plain dark gray; rump, upper tail-coverts, and crissum, black, with soft greenish reflections; tail, white, feathers grayish in the centre, two middle feathers, black, slightly recurved, the two longer upper coverts greatly recurved. Bill, olive-yellow; nail,

black; iris, hazel-brown; legs and feet vary from reddish orange to yellow.

Measurements — Length, 24 inches; wing, 12 inches; culmen, 2.20 inches; tarsus, 1.70 inches.

The adult male in summer acquires a plumage closely resembling the female, but of a darker cast. This is assumed in June. In August the winter dress begins to be resumed, and by October the plumage is usually full.

Adult female — Above, dusky brown, the feathers edged with ochraceous, beneath, the general color is paler, the feathers having dark centres, giving a mottled or streaked appearance; wing, similar to male. Bill, greenish yellow, with black markings; legs and feet, yellowish; iris, hazel.

Measurements — Length, 23 inches; wing, 10.50 inches; culmen, 2.25 inches; tarsus, 1.50 inches.

Downy young — Above, deep olive, marked by two pairs of light spots, the first pair on the back just behind the wing, the second at base of tail and a light superciliary stripe on the sides of forehead, head, and nape; dark line from bill through eye; entire under parts, yellowish buff.

Eggs — Eight to thirteen in number; olive-buff or greenish buff; measure, 2.20 by 1.70 inches.

Habitat — The northern portions of the northern hemisphere, breeding in Europe as far south as the Rhone Delta. Breeds in North America from Pennsylvania rarely, Ohio, Indiana, possibly Kentucky, Iowa, Kansas, Colorado, Utah, possibly Arizona and Lower California, and California, north to the Pribilof Islands, Kotzebue Sound, Alaska, the Mackenzie Delta, and east to Fort Anderson, Hudson Bay, Quebec, and Ontario, and in Greenland. Not found in Cumberland, nor apparently in Labrador, and rare in migration in Newfoundland, Nova Scotia, New Brunswick, and the Atlantic Coast north of Maryland. Winters in southern Greenland and from Maine rarely, Maryland regularly, Kentucky, Indiana, Illinois, Kansas, rarely Minnesota and South Dakota, Wyoming, Idaho, British Columbia and the Aleutian Islands, south to the West Indies and Central America. Occurs also in Bermuda and Hawaii.

The mallard, of all our ducks, is the most liable to hybridism; a few of the more interesting hybrids, described in "Baird, Brewer, and Ridgeway," are quoted here: —

1. Hybrids with the muscovy duck. These are produced in domestication; the offspring seems to acquire the tendencies of the wild bird, and escapes. It has the broad speculum and broad tail of the muscovy without the recurved feathers of the mallard. Head and upper half of neck black with green reflections, white on throat and under the eyes, breast and sides chestnut, rest of lower parts white. Flanks slate, speculum green, feet orange. Measurements: wing 13.20, culmen 2.30, tarsus 2.20.

2. Hybrids with the pintail. No. 6668, National Museum. This specimen in form and coloration throughout is a perfect combination of both species. The upper tail-coverts are purplish black, the two middle tail feathers are elongated half as much as in *Dafila acuta*, and curled half as tightly as in *Anas boschas*. Bill, dark lead color; feet, reddish; wing 11 inches, culmen 2.20, tarsus 1.55.

3. Hybrids with the black duck. The specimen is an adult male. Sides and back of head brilliant green, breast strongly tinged with chestnut, the lateral, upper, and terminal lower tail-coverts are black with violet reflections; middle tail feathers

recurved. Length 23.50, wing 10.75, culmen 2.05. Iris brown, feet dull orange.

I once shot a black duck in which the head was marked with a few green feathers, the plumage otherwise resembling *Anas obscura*. These hybrids with the black duck are more frequent than supposed.

No duck has a wider geographical range than the mallard. In the Old World it is found throughout Europe, Asia, and northern Africa, breeding from Spain to Lapland and Siberia; in North America, from the Gulf of Mexico to the Arctic Sea and from coast to coast. Generally abundant throughout the United States, it is uncommon along the Atlantic Coast, north of the Chesapeake. The mallard breeds sparingly through most of its range, abundantly in the United States from the northern border north; in the Rocky Mountains, from Montana to Alaska; in the interior, from Dakota and Manitoba along the watercourses to Hudson Bay; in the country west from Hudson Bay and north to the Arctic sea.

The marshy ponds and sloughs of the prairie are the nesting-grounds of vast numbers. The nest is placed among the rushes on the ground, and is composed of grass and weeds, lined with feathers. The eggs number from twelve to fifteen, and are covered with down. In the far

North the nest is frequently several rods from water, usually among trees or scrub brush; in rare instances the bird has resorted to a deserted hawk's or crow's nest.

During the period of incubation the duck takes full charge, the males congregating by themselves. She is a close sitter, and can sometimes be lifted from her nest. If disturbed, the old bird often feigns wounded. The ducklings take readily to the water, diving and hiding at the suspicion of danger. By the latter part of August they are fledged, and at this time are killed in large numbers by the natives.

August and September, 1894, were spent by the writer in North Dakota. Early in September, mallards and shovellers were the most abundant ducks, but among all the mallards killed there was not a single green-head, nor was one seen until September 20, when a drake was shot in about half-full plumage. By the first week in October the birds are well established in their fall homes. The extensive marshes of our Western states are their favorite resorts in the early fall, and on their first arrival many are killed from boats pushed through the rushes, or from passes along their line of flight. Continuous persecution soon makes them wild, and we find them keeping to the open water during the day, coming at night to the marshes to feed. In certain localities the

mallard frequents the corn-fields and stubbles. They are, to a large degree, nocturnal in their habits, and depend on their sense of touch and smell in feeding. When hunting a few years since on Currituck Sound, the cunning of the mallards especially impressed me. Sunset closes the gunner's day; almost immediately the first flocks of mallard come; the marshes, all day long devoid of ducks, now hear their whistling wings. Birds that have alighted call to those in the air, and their quacking is almost a din. At the first streak of dawn they are gone. They know the close days as well as the hunter. In some of the ponds near the club-house, shooting was not allowed. They frequented these spots with as little concern as the flock of decoys kept there. Few birds come to stool any better when once they start; often the live decoys see them first, and the far-off flock respond to the call. If high in air they drop and circle within range, but, quick to notice danger, at the slightest movement from the blind they spring into the air with a frightened quack and are off. The rice fields of the South are favorite haunts, and on this diet or wild celery the flesh is unsurpassed. In parts of the West along the salmon rivers, mallards sometimes feed on the maggots infesting the dead fish, and become intolerably rank. On the northeastern coast of the United States and Canada the bird is rare,

on Long Island occasionally occurring among flocks of black duck. In Connecticut it is found regularly, but it is far from common. Several instances of its occurrence in the last few years have been observed by the writer. Rarely they have been killed offshore on Long Island Sound. From time immemorial the mallard, of all the wild ducks, has been most readily domesticated, probably because of its general distribution in all countries and climates, and has been known to live twenty-two years in captivity.

BLACK DUCK

(*Anas obscura*)

Adult male — Top of head, black, narrowly edged with buff, remainder of head and neck, buff, streaked with brown; throat and chin, immaculate buff; rest of plumage, dusky, paler beneath; all the feathers, except those on lower back and rump, edged with light brown; speculum, metallic blue, sometimes green, edged with black; lower wing-coverts, white; bill, yellowish green or olive; nail, black; legs and feet, olivaceous brown; webs, dusky; iris, brown.

Measurements — Length, 22 inches; wing, 10.50 inches; culmen, 2.05 inches; tarsus, 1.60 inches.

Adult female — Resembles male, but is usually smaller and less richly colored.

Young — Similar to adult, with bill more of a greenish hue and streaked with dusky.

Downy young — Above olive-brown, relieved by six faint markings of buff, one pair on the posterior border of each wing, one on each side of back behind wings, one on each side of rump; top of head and back of neck, brown like the back; under parts, light buff.

Eggs — Six to twelve in number; pale buff to pale greenish buff; measure 2.30 by 1.70 inches.

Habitat — Breeds from the coast of North Carolina (formerly ?) and from Pennsylvania, Ohio, Indiana (?), Illinois, and Iowa, north to Sable Island, Newfoundland, southern Labrador, Quebec, Ontario, and eastern Manitoba. Winters from the coast of Massachusetts, western New York (?), Indiana (?), and Kentucky, south to Florida, the West Indies, Alabama, and Louisiana. Recorded from Bermuda and Texas (?), and very doubtfully from Utah. Rare west of the Alleghanies.

This bird is the standard game duck of the northeastern United States and Canada, occurring on all the bodies of water inland and along the coast. Exposed on all sides to gunning of every description, the black duck thrives, and holds its own with a reputation for cunning and wisdom unsurpassed. It breeds regularly farther south than has been generally supposed.

Northern New England, New Brunswick, Nova Scotia, and eastern Canada north of the St. Lawrence are favorite breeding-grounds. It nests sparingly in Massachusetts, Connecticut, and Long Island. For several years the writer noticed in early August a brood of young black duck on the Quinnipiac River, a short distance from New Haven. The nest is composed of coarse grass, and is generally situated in a swamp or marsh close to the water. From eight to twelve eggs are laid. The young are hatched in late June, and carefully guarded and concealed by the old bird, who keeps them close to the marsh, where long grass and weeds afford a ready protec-

DUSKY OR BLACK DUCKS—MALE AND FEMALE

tion. If disturbed under these circumstances, the old duck remains perfectly quiet, only quacking when she jumps into the air. Left alone, the young ducks occasionally betray their presence by a frightened peep. The brood rapidly grows to full size on a diet of insects, grubs, and various water-grasses, and by the latter part of August are full grown and able to flap out of the long grass. Now they are easily killed, and their flesh is most tender and excellent.

In localities where blueberries grow near the water they are a favorite food. On the Magdalen Islands the writer has frequently seen black duck feeding high up on the hills among the blueberry bushes, in company with Hudsonian curlew. The families soon congregate, and in the early fall we find them in flocks of more than fifty. By the middle of October they appear in numbers along our coast, frequenting the ponds and rivers a short distance inland and the shallow bays, especially where there are marshes. They are a welcome sight to every duck-hunter. At first killed in some numbers, they soon learn all the gunner's craft, during the day keeping to the open water, and if in any uncertain place, well guarded by sentinels; they spring into the air with loud quacking at the first suspicion of danger. In places where black duck are much hunted, and there are few spots where they are not, the birds come to

the feeding-grounds on their favorite marshes only at night. Here pot-hunters keep watch, driving them off, but not frequently killing many. An overcast moonlight night offers the best opportunity for this illegal shooting, as then the birds can be seen at some distance.

The most popular hunting-grounds for black duck are the marshes near the shallow bays and larger rivers of the Atlantic Coast, from the St. Lawrence to Currituck Sound. The large marshes of Lake Erie and Ontario are famous resorts. On the bays about the Chesapeake they are most frequently killed over decoys, placed off the points and islands, where rushes and marsh grass afford good blinds. If the birds are much shot at, live decoys are far the most satisfactory. These can be used jointly with the wooden stool, and ducks with a disposition to quack should be selected. Heavy weather affords best chance for shooting black duck. The birds under these circumstances leave the larger bodies of water, and lead up under the lee of points close to the marshes, keeping continually on the move. No wild duck taxes the patience of a gunner more. Suspicious and wary, they often circle about the stool, lighting beyond them, just out of range, watching for the slightest movement, when they jump high in the air with an exasperating quack. If wounded, the bird skulks with head just above

the water's edge; and where reeds and long grass afford shelter, it is almost impossible to retrieve except by a well-trained dog. In some instances black duck, like mallard, are baited by corn placed on the feeding-ground. If exposed to tide or current, the grain should be well soaked first. No food is too good for black duck, and on the tender grasses abounding on the feeding-grounds of the South the flavor of their flesh is unsurpassed. Along the coast, in the deeper bays, small shell-fish and crustacea comprise part of their diet, and should winter weather keep them from the marshes their flesh becomes almost fishy. While many black duck winter along the New England coast where they find open water, there is a regular spring and fall migration of these birds wintering farther south. Late in March we find them in pairs. Now they seek the smaller ponds and streams, going on to the fresh-water meadows. Birds I have shot at this time have often had angleworms in their stomachs.

The habits of the black duck and the mallard are similar, and in localities where the two are found they associate. The flight is characteristic, high and strong but irregular, and not in any line. When near by the white under wing-coverts are noticeable. Black duck can be reared in confinement, but for decoy purposes these birds are not as satisfactory as domesticated mallards.

This species is also known as the dusky duck, and the black mallard.

RED-LEGGED BLACK DUCK

(*Anas obscura rubripes*)

Adult male — "Similar to *A. obscura*, but larger; the feathers of the pileum conspicuously edged with grayish or fulvous; the dark markings on the fore neck and the sides of the head, coarser, blacker, and more sharply defined; the entire throat usually streaked or spotted with blackish; the tarsi and toes bright red; the bill yellow."

Measurements — Length, 25 inches; wing, 11 inches; culmen, 2.15 inches; tarsus, 1.70 inches.

Adult female — Resembles male, but is smaller and less richly colored.

Eggs — (Probably this form since taken at Rupert House, James Bay) grayish white, tinged sometimes with green; measure, 2.45 by 1.77 inches.

Habitat — Taken in the breeding season from James Bay, north to northern Labrador and the west shore of Hudson Bay, and probably Fort Anderson. Occurs in the migration on the Atlantic Coast from Newfoundland to North Carolina, and to Arkansas in the interior, wintering from Chignecto Bay, Nova Scotia, south. Probably the birds recorded in winter from western New York and Indiana, and possibly those in Kentucky, as well as part of the migrants reported from Ohio, Illinois, Michigan, Minnesota, Wisconsin, Nebraska, and Missouri, belong to this subspecies.

This is the large black duck with red legs and a yellow bill that frequents the bays of New England and the Middle states in winter, coming to the marshes at night for food and water, when most of the small black ducks, with olive bills and brownish legs, have gone farther south. The

difference between the two forms has been shown recently by Mr. William Brewster.

FLORIDA DUCK

(*Anas fulvigula*)

Similar to *Anas obscura*, but slightly smaller; the difference being its lighter color, the chin, throat, front of neck, and most of cheeks being a creamy buff and unspotted; speculum, green, sometimes upper part white; the buffy ochraceous margins are wider and brighter both above and below. A constant point of distinction is in the bill, the base of which in this species is margined by a narrow black line, which widens out into a triangular space beneath the feathering of the lores.

Measurements — Length, 20 inches; wing, 10 to 10.50 inches; tail, 5 inches; culmen, 2.05 to 2.33 inches; width of bill, .90 inch; tarsus, 1.70 to 1.80 inches; middle toe, 1.90 to 2 inches.

Eggs — Eight to fourteen in number; pale dull buff, sometimes tinged with green; measure 2.15 by 1.60 inches.

Habitat — Resident in Florida, chiefly in the southern part of the state, and becoming rare. Possibly occurs in West Indies; recorded also from Louisiana, and said to breed on the coast.

The Florida black duck for a long time has been recognized as a distinct species. Its breeding range is confined entirely to the South. Instances of the black duck breeding south of the Carolinas are probably this variety. The nesting time in Florida is early in April (according to Mr. N. B. Moore). The bird nests not frequently at some distance from the water's edge, always on the ground. The female plucks the down from her breast for the nest lining. Eight to ten eggs are laid of a slightly lighter shade

than the eggs of the common black duck. In its habit the bird closely resembles *Anas obscura.* The flesh is excellent.

Mr. N. B. Moore, in "Baird, Brewer, and Ridgeway," gives an interesting description of this bird: "In August and September small flocks leave the fresh ponds and fly across the bay to sand-bars on the inner sides of the keys, where they spend the night in pools or coves, returning at sunrise. Those shot at this time are all males. In the late winter and early spring mated birds resort to the same places." Mr. Moore suggests as a reason for this species not being more common in the districts it frequents, the sweeping fires which destroy the dry grass.

MOTTLED DUCK

(*Anas fulvigula maculosa*)

This subspecies resembles closely the Florida variety, differing from it in that the cheeks are streaked with brown, instead of being plain buff; the speculum is purple; in general effect the plumage is mottled and not streaked; bill has a small black spot on base of lower edge of upper mandible, as in the Florida variety; feet, reddish orange.

Measurements — Length, 20 inches; wing, 10 inches; culmen, 2.25 inches; tarsus, 1.75 inches; middle toe, 1.50 inches.

Eggs — Seven to ten in number; resemble those of the Florida duck in color and measurement.

Habitat — Breeds from Louisiana, Texas, and probably northern Mexico, north to Kansas, and has been taken in Colorado. Winters on the Gulf Coast of Louisiana, Texas, and northern Mexico.

For years the mottled duck was confused with the black duck, and still later with the Florida duck. Its habits are similar to those of these birds.

Mr. E. A. McIlhenny states that on April 28, 1896, he shot in Louisiana a male mallard (*A. boschas*) mated with a female of this species, and collected the nest with ten eggs.

GADWALL

(*Chaulelasmus streperus*)

Adult male — Top of head, reddish brown of varying shades, spotted with black; rest of head, light buff speckled with dark brown; throat, indistinctly spotted with brown; upper part of back and breast, marked with crescentric black and white bars; back, scapulars, and flanks, undulated with slate-color and white; long scapulars, edged with brown; lesser coverts, gray; middle coverts, chestnut; greater coverts, black; secondaries, pale gray, with outer edge forming a speculum of white; upper and under tail-coverts, black; tail, dark gray, edged with white; rest of under parts, white; bill, bluish black; nail, black; iris, hazel; legs and feet vary from yellowish to orange-yellow; webs, dark.

Measurements — Length, 20 inches; wing, 10.75 inches; tail, 8.90 inches; culmen, 1.80 inches; tarsus, 1.70 inches.

Adult female — Somewhat resembles the male, but the upper parts dusky, edged with buff, and the under wing-coverts are pure white, and there is little or no chestnut on the lesser wing-coverts; bill, dusky orange near the edges; legs and feet, yellowish, with dark webs; slightly smaller than the male.

Measurements — Length, 19 inches; wing, 10 inches; culmen, 1.70 inches; tarsus, 1.60 inches.

Young — Similar to female, but with no chestnut or black on the wings.

Downy young — Upper parts, dark brown, with yellow spots on sides and back and rump; lower parts, grayish; forehead, throat, and chest, yellowish.

Eggs — Eight to twelve in number; cream-color; measure, 2.15 by 1.50 inches.

Habitat — "Nearly cosmopolitan." In North America, breeds from Ohio, Michigan, Minnesota, Nebraska, Colorado, Utah, Nevada, and the interior of California, north to Ontario, Hudson Bay, Assiniboia, and Alberta, and possibly the lower Mackenzie and the Yukon rivers. Winters from Virginia, possibly Maryland, Illinois, Louisiana, Texas, Arizona, Utah, Wyoming, and California, south to Lower California, Mexico, and the West Indies. In migrations occurs very rarely on the Atlantic Coast north to Maine and Quebec, and on the Pacific to British Columbia, and one is recorded from the Aleutian Islands in December. Occurs in Bermuda.

The gadwall is found more commonly in the interior than on the coast, and seems to prefer the prairie sloughs and marshes to the wooded lakes. The table-lands of North America, from Dakota and Montana south into Mexico, is the area over which they are most abundant. In April, 1901, near Tampico, I saw thousands of these birds. They were in large flocks near the shores of the lakes. We approached them in our dugouts and had no difficulty in coming within range, the birds starting up in front and settling down ahead to other flocks. At this time they did not appear to be mated. The flesh was excellent, and a happy change from the monotony of a Mexican diet. Later in May we found them still common near Chihuahua; here they were in pairs, evidently about to nest.

The gadwall undoubtedly breeds throughout most of its range. Creeks and marshes well

lined with rushes are the sites selected. Here the nest is placed on the ground, constructed of grass, and carefully concealed, the duck covering her eggs well with down. The young birds are fledged late in August. In North Dakota many of the ducks seen in early September are gadwall, young birds undoubtedly bred in the vicinity. They leave before the first of October. In most of the more popular duck-hunting resorts throughout the United States, this bird is not as frequently met with as other water-fowl. This, and the fact that it does not decoy readily, makes it somewhat of a stranger. The gadwall is found most often in small flocks by itself or in the company of widgeon. It feeds in the shallow muddy creeks and pools on various kinds of vegetable matter. The birds become very fat, and if shot from a height the fall sometimes breaks open the skin. The flesh is delicate and tender, but in localities has a sedgy taste. On the wing the gadwall is an imposing bird, the dark breast giving it a black appearance. It is known by a variety of names, such as creek-duck, speckled belly, gray duck, gray widgeon, Welch drake, German duck.

EUROPEAN WIDGEON

(*Mareca penelope*)

Adult male— Forehead and top of head, white, sometimes buff, rest of head rufous brown; cluster of small green spots behind eye; chin and throat, black; breast, pinkish brown; back and sides,

undulated with black and white; wing-coverts, white; speculum, green; lower parts, white; under tail-coverts, black; tail, pointed, brownish, becoming black at tip; iris, hazel; bill, slate; nail, black; legs and feet, slate, with dusky webs.

Measurements — Length, 18 inches; wing, 10 inches; culmen, 1.40 inches; tarsus, 1.50 inches.

Adult female — Head and neck, rusty, speckled with black; upper parts, dusky brown, margined with gray; wings, greenish brown; speculum, dull black; upper tail-coverts, brown; tail, purplish brown, feathers edged with white; breast and sides, light brown; rest of under parts, white; under tail-coverts, barred with blackish brown; iris, brown; bill, slate; nail, black; legs and feet, brown, with dusky webs.

Measurements — Length, 18 inches; wing, 10.50 inches; culmen, 1.36 inches; tarsus, 1.50 inches.

Eggs — Five to eight in number; pale buff; measure, 2.20 by 1.50 inches.

Habitat — The northern parts of the eastern hemisphere, breeding west to Iceland. Breeds probably also on the Aleutian Islands and possibly in Greenland and west of Hudson Bay. In the migrations and in winter, several have been recorded from California, one from Nova Scotia, and twenty-five or thirty from Massachusetts, New York, New Jersey, Maryland, Virginia, Indiana, Illinois, Michigan, Wisconsin, Nebraska, and from Kenewatin and Great Slave Lake, though the last record may refer to *M. americana*, as the Kenewatin record certainly does.

This bird, while breeding off Alaska to some extent, is a rare straggler to the United States; the more noteworthy instances of its occurrences being on Long Island, December, 1842, Alexandria, Virginia, occasionally along the coast of California. Two instances the writer has seen: one an adult male, taken on the Illinois River; the second a full-plumaged male, killed on Long Island in the winter of 1899. The bird in most

cases has been shot in company with the American widgeon. That it occurs more frequently than is supposed, would be indicated by the fact that in some localities gunners speak of a red-headed widgeon, supposing the bird to be a cross between a red-head and a common widgeon, or baldpate. Undoubtedly birds of this species are referred to. In habits the European widgeon resembles the American variety, frequenting marshes and shallow bodies of water in their vicinity; but, unlike the American baldpate, is frequently seen on salt water, feeding almost entirely on the short grass growing on the bottom. The widgeon has been known to reach the age of twenty-three years.

BALDPATE

(*Mareca americana*)

Adult male — Forehead and top of head, white ; a patch of metallic green behind the eye extends down the neck posteriorly; remainder of head, buff speckled with black; back and scapulars, brown, undulated with black; wing-coverts, white; the greater coverts, tipped with black forming a bar across the wing; speculum, green and black; under wing-coverts, white; breast and sides, pale lilac, rest of under parts, pure white; under tail-coverts black; tail, brown, edged with white; bill, slate, with a black nail; legs and feet, slate with dusty webs.

Measurements — Length, 19 inches; wing, 10.50 inches; culmen, 1.50 inches; tarsus 1.50 inches.

Adult female — Top of head, black, edged with white; rest of head, buff streaked with dusky; upper breast and sides, reddish buff, with dark spots on breast; rest of under parts, white; upper parts, dusky, barred with buff; iris, brown; legs and feet, brown with dusky webs.

Measurements — Length, 18 inches; wing, 10.20 inches; culmen, 1.40 inches; tarsus, 1.40 inches.

Young male — Resembles the female closely. Its general coloring, however, is deeper. The breast and flanks are more vinaceous, and the wing markings more clearly defined.

Downy young — Upper parts, dark olive; lower part of head and neck and under parts, lighter; spots of buff on each side of back and rump.

Eggs — Eight to twelve in number; ivory-white in color; measure 2.20 by 1.45 inches.

Habitat — Recorded as breeding from Indiana, Illinois, Minnesota, Kansas, Colorado, Texas, Arizona, Utah, and British Columbia, north to Hudson Bay, Fort Anderson, Kotzebue Sound, the Yukon Delta, and probably the Aleutian Islands: breeds chiefly north of the United States. Winters from Maryland, irregularly north to Maine, Indiana, the lower Mississippi Valley, Texas, Idaho, Nevada, and British Columbia, south to the West Indies, Central America, and Lower California. Recorded as a migrant in Newfoundland and Labrador, and as a straggler in Europe, Bering Islands, Kamchatka, Hawaii, and Bermuda.

This bird bears the unenviable reputation of a telltale; quick to notice danger and always ready to sound an alarm, many a flock of unsuspecting ducks has turned out of harm's way under the leadership of a wary widgeon.

The favorite haunts in the United States are the lakes and rivers of the middle and western United States and, in localities, the coasts. They are common along the southern and Lower California shores and on the Atlantic south of Maryland.

The breeding-grounds are well to the north, on the Yukon and Mackenzie rivers, even to the

Arctic Sea, rarely in the northern United States, both east and west of the Rocky Mountains. Wild lakes and rivers not much frequented by other ducks are the spots widgeon choose for their nests, which are placed on high dry ground in the woods, sometimes half a mile from water. The nest is constructed among the dry leaves, usually at the foot of a tree, the eggs well covered with down. During incubation the males collect by themselves and moult, assuming through the summer a dull plumage. In early October they appear in Dakota, Montana, and Minnesota, choosing the ponds and lakes of larger size. At first they are shot in some numbers where there are passes under their flight; but they quickly become shy and fly high over land. A little later we find them throughout California and Colorado, and in the valley of the Salt Lake. By the end of October they appear on the Atlantic Coast. Here the mouths of the larger rivers and bays of brackish water are their haunts. As they keep well out of range of the points and only fly high over the marshes, it is difficult to kill them. At times these birds associate with canvas-back and black-heads, feeding on the grass the others dive for, and hence the name poacher. In heavy weather, with mallard and black duck, they come on to the marshes within range of the blind. In these instances the widgeon is usually the first to

give alarm; rising high in the air with strong, swift flight, it quickly speeds beyond reach. Often we see flocks of them with pintail, both birds being of much the same habit. Usually in small numbers, widgeon collect in large flocks in the spring. On Currituck Sound, in March of some years, the numbers of these ducks are remarkable and yet few are killed. They seem to have a morning and evening flight. In the late afternoon, flock after flock, high up, far out of range, follow each other in quick succession leading toward the marshes and flats of the upper bay, returning in the early morning. The line of flight is abreast, and their clear whistling loud and characteristic. When wounded the bird skulks but seldom dives. They feed on wild celery where it exists, and on various water grasses, in the South visiting the rice-fields. It is one of our highly esteemed ducks for the table. In the various locations where it is found it goes by various names, such as the American widgeon, poacher, wheat-duck, baldcrown, baldpate, green-headed widgeon, zan-zan.

The female of this species resembles slightly the gadwall, but distinction can readily be made by the speculum, which is gray in the gadwall, in the widgeon black, and by the dark mandible.

EUROPEAN GREEN-WINGED TEAL

(*Nettion crecca*)

Adult male — Similar to the American species, but without white bar on the breast; the forehead and wing-coverts bordered by a pale buff line; the black and white markings on back and sides are broader. The female is hardly distinguishable from the female of the American green-winged teal.

Habitat — Inhabits the northern parts of eastern hemisphere, breeding from Iceland to the Commander Islands, and south to northwestern Africa and Japan, and in winter occurs from the Canary Islands, northern Africa, Somaliland, and India, east to the Philippines. Recorded in North America from Greenland, Labrador, Nova Scotia, Massachusetts, Connecticut, New York, Virginia, California, and the Aleutian Islands.

This bird has occasionally been taken in many parts of America, and is probably more common than supposed, it being overlooked on account of its close resemblance to the North American variety.

In size, eggs, and habits it resembles our species.

GREEN-WINGED TEAL

(*Nettion carolinensis*)

Adult male — Head and neck, chestnut, with broad, metallic green band from eye to nape, terminating in a tuft of purplish black; a narrow, buff line borders the under side of the green band; chin, black; back and sides, crossed with narrow, wavy black and white lines; lower back, dark brownish gray; upper tail-coverts, dusky, edged with white; tail feathers, brownish gray, edged with white; a broad white bar in front of bend of wing; speculum, metallic green, bordered beneath by a broad, black bar, tipped with white; breast, light buff, mottled with round, black spots, growing indistinct on under parts, which are white;

buff patch on each side of crissum; under tail-coverts, black; bill, black; legs and feet, dark brown; webs, dusky.

Measurements — Length, 14.50 inches; wing, 7.25 inches; culmen, 1.50 inches; tarsus, 1.25 inches.

Adult female — Top of head and neck, brown, feathers edged with ochraceous; sides of head and neck, light buff, speckled with dusky; chin and throat, buff; upper parts, dusky, feathers barred and margined with pale buff; wing, similar to male; rump, tail, and upper tail-coverts, brown, edged with white; upper part of breast, dark buff, spotted with brown; rest of under parts, white, with dusky spots; legs and feet, brown; webs, dusky.

Measurements — Length, 14.25 inches; wing, 6.70 inches; culmen, 1.40 inches; tarsus, 1 inch.

Young male — Like the female, but under parts, except sides, pure white. The wing is usually brighter.

Downy young — Upper parts, grayish brown, a buff spot on each side of back and rump; head, neck, and lower parts, pale buff; top of head, darker brown.

Eggs — Eight to sixteen in number, pale buff in color, and measure 1.80 by 1.30 inches.

Habitat — Breeds from Newfoundland, New Brunswick, Vermont, Quebec, possibly Pennsylvania, Indiana, Michigan, and Ontario, Minnesota, South Dakota, Utah, and Oregon, and south in the mountains to Colorado, Arizona, and probably New Mexico, north to Labrador, possibly Greenland, Fort Anderson, Kotzebue Sound, and St. Michael, Alaska, and the Aleutian Islands. Winters from Maryland, casually north to Maine, western New York, Pennsylvania, Indiana, Illinois, Nebraska, Texas, Nevada, British Columbia, and the Aleutian Islands, south to the West Indies, Central America, and Lower California. Recorded from Great Britain, Bermuda, and Hawaii.

This beautiful bird resembles almost exactly the European variety. While well known throughout our country it is not particularly common on the Atlantic Coast. The green-winged teal breeds farther north than the blue-winged, and

follows it on the southern migration. In summer passing into the British provinces, they nest as far north as Hudson Bay and Alaska, the southern limit of their breeding range being our northern mountain states. The nest, placed in a marsh and composed of grass, is neatly hidden. In mountainous countries a meadow along the stream is often the site. Occasionally the nearest water is some distance off, but this is an exception. The broods are often large, and we sometimes see this little duck with a charge of eighteen or more ducklings. The young, about the size of bantam chicks, follow the mother, keeping close to the shore in shallow water, seldom venturing far from the cover of grass or weeds. On September 10, 1890, at the Magdalen Islands, I flushed a female of this species. The bird exhibited every sign of distress. Soon a faint peep almost under foot revealed a little teal just hatched. After a careful search we found several others in the short grass. The old bird kept close by, flying within a few feet of us, uttering a plaintive note of alarm. This was undoubtedly a late second brood.

The green-winged teal arrive in the United States after the blue-winged, and we find them in flocks together in September. They associate often with mallard and black duck, and have many habits in common. In Mexico the three varie-

ties of teal are abundant, occurring together for a short time in the spring of the year. In April the green- and blue-winged were about equal in number with an occasional cinnamon teal. Three weeks later the green-winged teal had mostly gone, but we saw the blue-winged with the cinnamon.

On the Atlantic Coast this bird occasionally straggles offshore and is killed with the sea ducks. An instance of this came to my notice last winter, when a full-plumaged male was killed by Charles Langfare, off Branford, Connecticut, in the Sound; it came to broadbill decoys.

The favorite haunts of the green-winged teal in the United States are the marshes and shallow lakes of the Western states. It is common in the Rocky Mountain states and in California, arriving early in September and remaining until the first cold weather, when it is one of the first of our ducks to leave for warmer climates. They follow the Mississippi Valley to the Gulf states and are found along the Gulf of Mexico as far south as the shores of Central America, and at times are numerous in the West Indies. Popular with sportsmen and killed relentlessly by market gunners, this bird is exposed everywhere within its available range to persecution; yet it is a pleasure to feel there are some localities where the green-winged teal still exists in large numbers, gentle and undisturbed.

BLUE-WINGED TEAL

(*Querquedula discors*)

Adult male — Top of head, chin, and space along base of bill, black; a crescentric band of white, edged with black, goes from the forehead in front of the eye to the throat; rest of head and neck plumbaceous, with a metallic purple gloss on occiput; back, dusky, with bars of buff; long scapulars, greenish black, with a central stripe of buff; lesser wing-coverts, pale blue; greater coverts, dusky, with white tips forming a bar in front of the speculum, which is metallic green; lower back and upper tail-coverts, dusky; a white patch on each side of the tail; entire lower parts, reddish buff, spotted with dusky, becoming paler on lower breast; under tail-coverts, black; iris, brown; bill, black; legs and feet, yellow, with dusky webs.

Measurements — Length, 15 inches; wing, 7.30 inches; culmen, 1.70 inches; tarsus, 1.20 inches.

Adult female — Top of head, black; remainder of head and neck, buff, streaked with dusky; chin and throat, white; upper parts, dusky, feathers edged with buff; wing-coverts, blue, but green speculum is wanting; under parts, buff, with dusky markings; bill, greenish black; legs and feet, greenish yellow. The blue patch on the shoulder is distinctive.

Measurements — Length, 15 inches; wing, 7 inches; culmen, 1.40 inches; tarsus, 1.12 inches.

Young male — Similar to female; white throat, speckled with dusky; green speculum is visible; under parts, buff, barred with dusky. Male during breeding season assumes the dull plumage of the female.

Downy young — Top of head and upper parts, brown; buff spots in front of wing, across wing, and at side of rump; forehead, line to eye and lower parts, pale buff; sides of head and hind neck, ochraceous buff.

Eggs — Ten to twelve in number, pale buff in color, and measure 1.85 by 1.30 inches.

Habitat — Breeds from Maine, occasionally Rhode Island, western New York, Ohio, Indiana, Illinois, Iowa, Kansas, Colorado, Nevada, Wyoming, and British Columbia, and probably Texas,

Arizona, Mexico, and Lower California, north to New Brunswick, Labrador, Repulse Bay, Great Slave Lake, Saskatchewan, and possibly the Yukon Delta. Winters from Maryland, Kentucky, Missouri, Texas, and California, south to the West Indies, and South America to Ecuador. Rare on the Pacific Coast, and in Newfoundland and Nova Scotia in migration. Recorded from Europe and Bermuda.

While the blue-winged teal is generously distributed in the northern United States and lower provinces of Canada, the birds are in no way partial to cold weather and hurry along at the first frosts. True to the sunny South, they loiter on its inland waters and winter along the bays and lagoons of the Gulf Coast, well into the tropics. This bird loves the rice-fields, where the nature of the place affords protection when once the flocks are settled, their danger being on the flight to and from the feeding-ground. On this diet the teal attains the high reputation it holds among epicures. In late August we find them fully fledged, frequenting the marshes of the West where the wild rice grows. They are relentlessly hunted from time of first arrival. During the hours that are sacred to the duck marsh, the time after dawn and toward dusk, they are found. At first many are killed by pushing through the grass as they jump up in front of the skiff or on their line of flight between the ponds. At the approach of evening the first line appears over the tops of the rush-grass, flying low and with

a speed possessed only by a teal. Another minute and they have passed; the rush of their wings told how closely they came; but no one but an old hand could have stopped one. The next flock follow, the gunner rises in time, and they sheer off, crowding together in an attempt to turn; but a well-placed shot drops several birds. So they come on until dark, when the soft whistling overhead tells of ducks still looking for a spot to feed and spend the night in peace.

The male blue-winged teal in his full spring dress is one of our beautiful water-fowl. The delicate brown speckling of the breast, the light blue and white of the wing, and the soft violet of the head, with a face of white, make a pleasing combination. In this plumage he is seen in April and May, but not commonly on the eastern coast, the journey north being along the water-courses of the interior. We found large numbers of them near Tampico. It was late April, and they were mated but still in small flocks. Undisturbed and tame, they gathered at the water's edge on the shores, keeping company with the yellowlegs and other waders; if alarmed, they ran along the flats with the speed of a plover, or springing up they settled at a safer distance.

The blue-winged teal undoubtedly breeds sparingly far south on its range, but most abundantly

on the northern prairies of the United States and Manitoba, choosing the borders of the sloughs of rush-grass. Here the nest is concealed among the weeds and rushes and consists of an accumulation of grass lined with feathers. The duck covers her eggs while away from the nest. June is the time for incubation. The male now loses his fine attire and takes on a plain brown plumage, closely resembling that of the duck. In late August the young are fledged and we see the first flocks, the mark of early fall.

CINNAMON TEAL

(*Querquedula cyanoptera*)

Adult male — Top of head, blackish; rest of head, neck, and lower parts, bright chestnut; back, rump, upper tail-coverts, and tail, olive-brown, feathers lighter on edges; wing-coverts, pale blue; tips of greater wing-coverts, white, forming bar over a green speculum; bill, black; legs and feet, orange; webs, dusky; iris, orange.

Measurements — Length, 17 inches; wing, 7.25 inches; culmen, 1.80 inches; tarsus, 1.25 inches.

Adult female — Resembles the female blue-winged teal, but more reddish; sides of head and throat, deep buff; back, olive-brown; entire under parts, light brown; breast, rufous, with dusky spots; bill, dusky; feet, yellowish.

Measurements — Length, 16.50 inches; wing, 6.75 inches; culmen, 1.70 inches; tarsus, 1.25 inches.

Young male — Resembles female, but speculum is more distinct and under parts are streaked instead of spotted.

Downy young — Top of head and upper parts, olive; under parts, sides of head, and a stripe over the eye, yellowish buff; a narrow, dark brown stripe on sides of head; two pair of buff spots, one on sides of back, the other on sides of rump.

Eggs — Twelve to fourteen in number; color, ivory-white; measure 1.80 by 1.35 inches.

Habitat — Breeds in western North America, north to British Columbia, Idaho, Wyoming, Utah, and Colorado, and east to western Kansas, and in western South America, probably south to Chili, where it is known to breed; occurring also in Argentina, Patagonia, and the Falkland Islands. All winter south of the United States, excepting stragglers in Louisiana. Recorded also from the West Indies, Florida, New York, Texas, Nebraska, Illinois, Minnesota, Manitoba, and Alberta.

The cinnamon teal is hardly common in the United States, where it is found chiefly in California, and is known as the red-breasted teal; but in Mexico, throughout the table-lands, the bird is abundant. The first arrivals come late in March, and by May they are common on all the lakes and lagoons of the mesa. March 20, 1901, while looking for ducks along a little creek near Laguna, I saw, just below the edge of the bank, in the shallow water, some thirty or forty teal, mostly green-winged. After watching them for several minutes in the seclusion of their pool, a hawk started the flock, and as they rose, the dark red of one attracted my attention. It was shot. This was my first introduction to the cinnamon teal, and few birds have given me more pleasure at first acquaintance. By early May they were common wherever there was water, at first associating with the flocks of other teal. These, however, soon left on their journey north, and the cinnamon teal was abandoned to the companionship

of gadwall and shovellers. We often saw this trio of species, the teal frequenting the edges of the ponds, running along the flats, sometimes jumping up from the grass near the shore. They were in pairs, and very tame. Undoubtedly these birds came on to the high lands to breed at this time, for they are not found here after the early fall, in September and October resorting to the coasts. The nest is placed near the edge of the pond or marsh, on the ground, and composed of grass, lined with feathers, often concealed by more or less rush-grass loosely scattered over it.

RUDDY SHELDRAKE

(*Casarca casarca*)

Adult male — Head and neck, buff, grading into orange-brown on the lower portion of the neck, which is surrounded by a black ring; back, breast, and under parts, fox-red; rump, yellowish red, streaked with black; wing-coverts, white, with a speculum of greenish purple; tail and tail-coverts, black; bill, legs, and feet, blackish; iris, brown.

Measurements — Length, 24 inches; wing, 14.50 inches; culmen, 1.75 inches; tarsus, 2.25 inches.

Adult female — Similar to the male; plumage is generally lighter and the color at the base of neck is lacking.

Eggs — Eight to ten in number, cream color, measuring 2.55 by 1.85 inches.

Habitat — Southern Europe, northern Africa, and southern Asia, east to China and Japan, straggling occasionally to Scandinavia and Iceland, and recorded twice from Greenland.

This species has been included among the North American birds on account of the doubtful

evidence of two Greenland specimens. One of these birds was found by Dr. Vanhöffen, while naturalist of the expedition sent to West Greenland in 1892 by the Geographical Society of Berlin, in a small collection of birds' skins made that year in the district of Upernavik, and the fact that several were taken that year in Iceland increases the probability that this specimen was collected in Greenland.

In many of its habits more like a goose than a duck, the ruddy sheldrake associates with geese, and has a call note that is gooselike in quality. It is a shy bird, feeding in the ponds and marshes at night, and spending the day on open plains where it can guard against danger. It breeds very early, seeking retired islands in lakes in Asia Minor. There it lays in holes among the rocks or sometimes in a burrow in the ground.

SHOVELLER

(*Spatula clypeata*)

Adult male — Head and neck, dark metallic green; dusky line on hind neck from head to back; upper part of back, breast, and anterior scapulars, white; rump, and upper and under tail-coverts, black glossed with green; wing-coverts, pale blue; speculum, metallic green; tail, brown edged with white, a white patch on each side of base of tail; entire under parts, deep chestnut; bill, black; iris, yellow; legs and feet, orange-red.

Measurements — Length, 19 inches; wing, 9.50 inches; culmen, 2.80 inches; tarsus, 1.40 inches.

Adult female — Head, neck, and sides, buff, streaked with dusky; chin and throat, buff; speculum, green; back, brown, edged with

buff; under parts, buff, spotted with brown; bill, brown; base of maxilla and mandible, orange; iris, yellow; legs, orange.

Measurements— Length, 19 inches; wing, 8.75 inches; culmen, 2.50 inches; tarsus, 1.20 inches.

Young male — Resembles female, but coloring is deeper; under parts darker. Adult male when moulting resembles female.

Downy young— Back of neck and upper parts, olive-brown, otherwise pale buff; yellowish spots on each side of back and rump; the bill is like that of the other ducklings, not enlarged.

Eggs — Eight to twelve in number, greenish white in color, and measure 2.05 by 1.40 inches.

Habitat — Europe, Asia, and northern portions of Africa in the Old World. In North America breeds from Ohio, Indiana, Illinois, Kansas, Texas, Colorado, Arizona, and California and probably Lower California and Mexico, north to the Bering Sea coast of Alaska, Saskatchewan, Kenewatin, and probably to Fort Anderson, and east to Ontario. Winters from Maryland, occasionally New Jersey, possibly Indiana, Illinois, Missouri, Texas, Arizona, and British Columbia, south to the West Indies and Central America; also in Hawaii. Occasional in migrations on the Atlantic Coast, north to Nova Scotia and Newfoundland; and in Bermuda.

In the United States the shoveller has a wide range, but is rare on the Atlantic Coast. It is most abundant through the prairie states, south into Texas and Mexico. This species undoubtedly breeds along a large part of its range. It is found nesting regularly in the fur countries, in the vicinity of the Yukon River, Lake Winnipeg, and the Barren Grounds, and commonly in Montana, Dakota, and Manitoba. The nest is close to the water on the edge of a marsh or island, concealed under grass or brush, and consists of a mere depression, roughly lined with grass. A nest found

SHOVELLERS—MALE AND FEMALE

by Mr. B. F. Goss at Horicon Lake, southern Wisconsin, May 24, is described as situated near the highest part of a small island, some five feet from the water on bare ground, and in company with numbers of mallards. The nest contained ten fresh eggs. It breeds from late May to July, the time corresponding to the locality. There is a record of a brood of shovellers hatched in the garden of the Zoölogical Society in England in the summer of 1841. After the duties of incubation the bright plumage of the male is shed, and the bird assumes an attire like that of the female, but darker, not resuming his splendid dress of winter until October. During the latter part of August the shoveller is perhaps the commonest duck of our Western states, frequenting the ponds and sloughs of the prairies. Here they are found with large numbers of other ducks, and are the tamest and most readily approached of all the flocks. They feed on various vegetable and animal substances which the peculiar, broad bill is specially adapted for sifting from the water. The flesh, while good, is not equal to that of the mallard or teal. When the vast numbers of ducks congregating on the lake are disturbed, the shovellers cross the land low down, and while the flight is speedy, they are readily killed. These birds come well to decoys; but as the localities where they are most abundant are rather beyond the range of the ordi-

nary duck-hunter, not many are killed in this way. Late fall and early winter finds the shoveller in the Southwestern states and Mexico, going well into the tropics. The male in his adult plumage is one of our most beautiful ducks. The combination of light blue and white of the wing, with the rich brown of the breast, is particularly striking. The green head and rather large appearance cause him sometimes at a distance to be confused with the mallard, but when nearer the distinction is readily made. In Mexico the shoveller, with the gadwall and cinnamon teal, stay latest. In April, 1901, I saw in a small pool near one of the ranches in northern Mexico a flock of several hundred shovellers, the large majority of them males. They allowed close approach and continued to preen their feathers, at times uttering a low guttural quack. The brilliant coloring of these birds in the bright sunlight was a splendid sight. This small pond was the only water for twenty miles, and the Mexicans informed us they arrived in small relays in March, staying until May. Late in May, near Chihuahua, shovellers were numerous. At this time they were mated. A number of males, shot then, showed evidence of a beginning of change in plumage. The lagoons of the Gulf Coast of Mexico are the winter resort of great numbers of these birds, as well as the bays of California and the Pacific Coast of Mexico. This bird is common

in Texas and Louisiana, and is found sparingly on the Atlantic Coast of the Southern states, but is rare north of North Carolina and a straggler in New England. Two are recorded from Rye Beach, Massachusetts, in August, 1872. Four killed on the sand-bars just outside of New Haven harbor in September, 1886, were brought to the writer.

The shoveller is known by a variety of names, such as spoonbill, blue-winged shoveller, red-breasted shoveller, spoon-billed teal, spoon-billed widgeon, broadbill, swaddlebill, mud shoveller, mesquin.

PINTAIL

(*Dafila acuta*)

Adult male — Head and upper neck, brown, darkest on the crown; sides of head with metallic purple reflections; upper part of neck, black behind, lower part lighter, with faint white undulation; a white stripe beginning at upper edge of black portion passes down sides of neck and is continuous with the white of lower parts; back and sides waved with fine, narrow, white and dusky lines; wing-coverts, brownish gray, the last row tipped with cinnamon, forming a bar across the wing; speculum, bronze, with copper and green reflections, with an outside black bar and white tip; under parts, pure white; upper tail-coverts, black, edged with white, and lengthened; tail feathers, pointed, dark brown on outer side, gray on inner; the two central feathers black, long, and pointed, extending beyond the others; under tail-coverts, black, edged with white; iris, brown; bill, slate, black on tip; legs and feet, slate; webs, dusky.

Measurements — Length, 26 inches; wing, 10.50 inches; culmen, 2.30 inches; tarsus, 1.60 inches; tail, 7 inches.

Adult female — Top of head, brown, streaked with black; rest of head, buff, streaked with dusky; upper parts, dusky, crossed with bars of buff; under parts, white, streaked with dusky;

upper tail-coverts, spotted with black and white; bill, bluish gray, blackish on top; legs and feet, slate; webs, dusky.

Measurements — Length, 21 inches; wing, 9.30 inches; culmen, 1.80 inches; tarsus, 1.60 inches. This bird is easily distinguished from female ducks of other species by its long, slender neck.

Young male — Similar to female, but with speculum on wing.

Downy young — Top of head, back of neck and upper parts, olive-brown; a dull white stripe on each side of back, and over eye; a brown stripe through the eye from bill; under parts, grayish white.

Eggs — Five to nine in number, pale grayish green and measure 2.30 by 1.55 inches.

Habitat — In the Old World, Europe, breeding south to the Rhone Delta, Asia, northern Africa, China, and Japan. In North America, breeds in New Brunswick and from Minnesota, Illinois, Missouri, Nebraska, Montana, Wyoming, and Washington, possibly Arizona and California, north to the Bering Sea coast of Alaska, Kotzebue Sound, Point Barrow, and Fort Anderson, and probably east to Davis Strait and Hudson Bay. Winters from Virginia, rarely Pennsylvania, Ohio, Illinois, possibly Wisconsin, Kansas, Arizona, Nevada, and British Columbia, south to the West Indies and Central America; also in Hawaii. Occasional on the Atlantic Coast in migration, north to Newfoundland and Labrador, in Greenland and in Bermuda.

With a range as extensive as the mallard's, this species is nowhere as common. We find the pintail widely dispersed in the Old World, and occurring throughout North America, inland and on the coasts. The northern regions of both continents are their breeding-grounds. In North America through the Barren Grounds to the Arctic Sea and from Great Slave Lake to Alaska, this bird nests as far south as the northern border of the United States. Nelson, observing the birds

breeding on the Yukon, speaks of their habits at this time as interesting and peculiar. "The duck rises to a great height after the manner of a snipe, and setting the wings descends with a rush, causing a roaring noise which is heard at considerable distance." The nest is placed on low, dry ground, a short distance from water, under the shelter of bushes. It is a mere depression, lined with down and feathers. The duck lays from six to ten eggs. On the prairies of Dakota, Montana, and Manitoba the pintail occupy the same marshes as the mallards for their nesting, but the birds do not associate. The duck is a close sitter, and loath to leave her eggs. During early incubation the male is sometimes seen in the vicinity, but later leaves to moult, and during this period assumes a brown plumage not unlike the female, but darker, distinguishable by the tail feathers and the brighter speculum of its wing. The young are hatched early in July, and able to fly in September, when fledged frequenting the larger ponds in company with numbers of other ducks. If disturbed, they are among the first birds to take flight, springing into the air, coming over the pass with a speed that makes them the easiest of birds to miss.

In October we see the first evidences of the winter plumage. The males now are in full dress, with the exception of their long tail

feathers, which are not yet fully grown. By the last of the month they are scattered over their fall haunts, and are seen in numbers throughout the West and South.

In portions of the West, where they frequent the ponds and smaller lakes, they are much more easily killed than on larger bodies of water. The pintail arrive on the coast of North Carolina late in October, and are found in numbers through the brackish sounds. Decoys attract them occasionally, but never in as large numbers as the other ducks, for they are always wary and quick to suspect danger. These birds can be distinguished afar. The white under parts of the male and their long necks mark them at once. The flight is high in lines abreast, but almost before the flock is seen they are by and out of sight. When about to decoy no bird is more graceful; they often drop from a height far out of range and circle about the stool, watching carefully for the slightest motion; finally they swing within range and plunge among the wooden ducks. After realizing the mistake, they spring up all together, and are out of shot almost before you realize the chance is gone.

On the water, pintail maintain the same grace they show in flight, carrying themselves with all the ease of a swan. Many of the flocks winter much farther south than North Carolina, and

arrive in the spring on the journey north in large numbers. The birds are seen at this time passing high over the marshes, where they feed at night, often with the black duck and mallard, leaving early in the morning. The flight is like the widgeons', but quieter, their whistling not as noticeable. They have the same habit of alarming other ducks, and spoil many chances for the hunter. The pintail resort to large open bodies of water, especially when much disturbed by hunting; but they are surface feeders and do not dive for food; grasses and various vegetable matter growing in the shallow water form the diet. The flesh is excellent, and the bird is highly esteemed for the table. When wounded, they will dive to effect escape, but prefer to skulk and hide. On the New England coast the pintail is rare, nor is it common on Long Island. Only a few instances of its occurrence in Connecticut are known to the writer, and these were birds killed at dusk with black duck.

This species is known by a variety of names, sprigtail, spiketail, spindletail, spreetail, pigeontail, and smee.

WOOD DUCK

(*Aix sponsa*)

Adult male — Head with a crest reaching well down to the back, of green and violet metallic hues; a narrow white line at the angle of the maxilla passes over its edge and reaches to the end of the

crest; another white line beginning below and behind the eye extends along the lower end of crest; cheeks and sides of neck, violet-black; crest, silky in texture of metallic greens and purples; throat and front of neck, pure white; back, dark brown glossed with green; lower back and rump darker, grading into black on upper tail-coverts; wing-coverts, steel-blue with black tips; scapulars, black with metallic reflections; the longer tertials tipped with a white bar; lower portion of throat and breast extending well on to the sides, chestnut, mottled in front with white; on the sides of the breast, above shoulder, is a broad black bar over which is another of white; sides and flanks, buff crossed by fine wavy black lines; feathers of the upper borders having at their ends two bars of black enclosing a white one; lower breast, pure white; on each side of rump is a patch of dark purple; under tail-coverts, dark greenish brown; tail, black, with metallic reflections; bill, purple, red behind the nostrils with a black spot on the culmen; nail, black; an oblong spot of white from nostril to nail; basal outline, yellow; legs and feet, brownish yellow with dark webs; eyelids, vermilion; iris, red, sometimes reddish brown.

Measurements — Length, 19 inches; wing, 9.30 inches; tail, 4.70 inches; tarsus, 1.50 inches; culmen, 1.40 inches.

Adult female — Head, gray; crest shorter and smaller than drake's; back and rump and upper tail-coverts, brown, glossed with bronze; wings similar to male's but with wider band of white; breast, reddish brown; under parts, white; flanks, brown spotted with white; bill, dark lead color with a black nail; legs and feet, yellowish brown; eyelids, yellow; iris, brown.

Measurements — Length, 17 inches; wing, 8.30 inches; tarsus, 1.30 inches; culmen, 1.30 inches.

Downy young — Head and upper parts, dark brown; sides of the head, with a stripe over the eye, buff; dull white spots on the shoulder and on each side of the rump.

Eggs — Eight to fourteen in number, ivory-white when unsoiled, and measure 2.10 inches in length by 1.50 in breadth.

Habitat — Breeds from Florida and the Gulf states, Colorado, Nevada, and California, north to Nova Scotia, New Brunswick, possibly Labrador, Hudson Bay, Manitoba, Saskatchewan, and British Columbia. Winters chiefly in the United States, from

New Jersey, Pennsylvania, Indiana, Illinois, Missouri, and Texas, south to the West Indies and Mexico, and in Oregon and California. Accidental in Europe and Bermuda.

Any hunter could well repent his ruthlessness as he holds in his hand the dead wood-drake, and wish him alive and back again, a beautiful ornament to woodland waters. The stream, where it broadens into quiet water, well protected by a thick growth of alders, or some old mill-pond back in the woods, long since deserted, will miss him. Here he spent the late spring and early summer with his mate, and saw the young brood fledged. In October he brought them to the spot where young oaks line the water's edge and hide the swamp, affording their favorite food, acorns. And now with October foliage at its height, when cold nights warned him to push farther south and take his charge, he falls, his splendid plumage blood-stained. No bird less deserved the fate.

Wood duck are found in the woodland districts of the United States and Canada, north to the 50th parallel. They arrive in New England and the northern United States early in May, and frequent the secluded streams and lakes. At first in flocks of several, they soon separate and each pair seeks a nesting-place. This is generally the hollow of a tree or broken stump, rarely a deserted crow's nest. The aperture is thirty or forty feet from the ground and surprisingly small

for the size of the bird, the eggs being sometimes three or four feet from the opening. The bird flies through the woods and lights on the tree with all the speed and grace of a wild dove.

Wilson describes a nest of the summer duck found on the Tuckahoe River, New Jersey, May 18: "The tree was twenty yards from water on a declivity; in its hollow and broken top about six feet down, lying on soft decayed wood, were thirteen eggs, covered with down. This tree had been repeatedly occupied."

In an instance the writer has noticed, a pair of wood duck for years built in a broken branch of an elm, standing on the edge of a mill-pond in a small New England town. When the young were hatched the brood regularly disappeared, the birds trusting the locality for nesting purposes, but not for rearing their young.

Professor Kumlien describes a nest found in Wisconsin, in a high burr oak, in a thicket three-quarters of a mile from water.

The young are carried to the ground by the old bird in her bill. The little brood frequent some wild spot where foliage hides them, or a secluded pool along a stream. They feed on insects, water larvæ, or tender buds. The mother's note is low and prolonged, resembling the syllables *whee-whee*, and the young answer with a soft peep. The brood fly in September, and in

the fall we look for them in spots where acorns drop into the water. On this food they quickly fatten, and the bird in some localities goes by the name of acorn duck. With the first threatenings of winter they pass on toward the south and we find them in our Gulf states, frequenting the ponds and rivers.

This bird is also known as the summer duck, bridal duck, wood widgeon, and branchier in Louisiana.

Gentle and readily domesticated, the wood duck deserves all possible protection; but the excellence of its flesh and demand for its feathers expose it to a relentless persecution, and this species is rapidly decreasing.

CHAPTER III

DUCK-SHOOTING (*CONTINUED*)

THE SEA-DUCKS

(*Fuligulinæ*)

NEARLY allied to the river-ducks in most points, a sea-duck can be distinguished always by the membranous lobe on the hind toe. Their feet and palmations are also larger, and their legs set farther back on the body, with the result that their walk is even more of a waddle. In many of their habits they closely resemble the river-ducks, but they are fond of deep water at all seasons of the year, and sometimes occur in flocks containing thousands of individuals. Except in the breeding season, few of them frequent fresh water to any extent, but gather in large beds off the coasts, flying into some bay in the morning to feed, and retiring far from shore at night. They are expert divers, often obtaining their food at great depth, sometimes seeking the bottom even in one hundred and fifty feet of water. Their bodies, however, are so heavy relatively to their wings, that most of them cannot rise from the water

except against the wind, and after they have started, the flight is usually not so graceful as that of the river-duck. They feed chiefly on shellfish and crustacea, and their flesh is rank and fishy; but some, as the red-head, canvas-back and ruddy duck, live on vegetable substances, and are highly valued by epicures.

Though distributed throughout the world, the majority of the forty or more species in the family inhabit the northern hemisphere, breeding far to the north. Some species lay their eggs in large colonies on retired islands on the northern coasts, the males collecting in enormous flocks and living on the ocean some distance from the land, while the females assume all the responsibilities of incubation and raise the young. The nests are on the ground, often under bushes, and consist of a few twigs, grass, and leaves, mixed with the down of the parent. This down in the eider is so abundant that it has become an article of commerce, and on the coasts of Greenland, Iceland, and Norway the breeding colonies are visited regularly by the inhabitants, and the nests and many of the eggs collected. An average nest will weigh about an ounce and a third, and from Greenland and Iceland nearly six thousand pounds of down are exported annually. These birds are carefully protected, and become so tame that they sometimes breed in the houses

of the inhabitants, and will allow themselves to be lifted from their eggs without a struggle.

The sea-ducks are very hardy birds, some of them spending the winter on the ocean, not very far from the Arctic circle, cold apparently not troubling them in the least, as long as food is abundant and water sufficient for their needs remains unfrozen. The sexes differ in plumage, that of the male being often very handsome. A metallic speculum on the wing is rare. In many species the males assume in summer a dull plumage resembling the female, as do the river-ducks, this plumage persisting for only a few weeks. There is wide variation between the different members of this family. While the scoters are black and white with brightly colored bills, the males and females differing little, the eiders, with strangely shaped bills, are black and white in the male, and brown in the female. Both of these groups are large and clumsy. Contrasting with them we find the small and graceful old squaw, with its long central tail feathers, and the little ruddy duck, its tail feathers long and stiff, and the male colored bright red. The Labrador duck, which occurred formerly on the coasts of New England and the Middle states, was a near relative of the eiders.

A strange species of sea-duck living in South America is known as the steamer-duck, because

its movements when swimming are said to resemble those of a side-wheel steamer. Young birds of this species can fly, but as they grow older they lose this power, and content themselves with diving and swimming. Australia possesses, as might be expected, a very peculiar sea-duck. In this species both sexes are brownish black in color, but the male is nearly twice the size of the female, and has a large wattle under the chin. It flies rarely, but is a wonderful diver, staying under water a remarkably long time. The male in the breeding season gives out a strong odor of musk.

RUFOUS-CRESTED DUCK

(*Netta rufina*)

Adult male — Head and upper neck, vinaceous rufous, the soft and bushy crest, paler; stripe on hind neck, rump, upper tail-coverts and lower parts, brownish black; back and scapulars, grayish brown; speculum, outer portion of scapulars, anterior border and under side of wing, axillars and broad space on flanks, white; primaries, whitish, the tips of all and outer webs of first five, grayish brown; tail, grayish brown; bill, bright vermilion-red, tipped with white; irides, reddish brown; legs, orange-red.

Measurements — Length, 21 inches; wing, 10.25 inches; tail, 4 inches; culmen, 2 inches; tarsus, 1.50 inches.

Adult female — Crest smaller than adult male; top of head and stripe on hind neck, hair brown; rest of upper parts, grayish brown, darker on rump and upper tail-coverts; white scapular patch wanting, and white border to wings indistinct; speculum, pale ashy, darker terminally and tipped with white; sides of head, neck, and abdomen, pale ashy; rest of lower parts, brownish white, becoming white on under tail-coverts; primaries, like male but slightly darker; bill, blackish tipped with pink; irides, hazel; legs, pinkish; palmations, blackish.

Measurements — Length, 20 inches; wing, 10 inches; tail, 3.75 inches; culmen, 1.90 inches; tarsus, 1.50 inches.

Young male — Similar to adult female, but crest smaller and more reddish; the border of wing distinctly white, and white scapular patch plainly indicated.

Downy young — Upper parts, dull olive-gray; lower parts and scapular spots, pale yellowish gray; yellowish gray superciliary stripe; olive-gray stripes on lores, one passing above superciliary stripe and the other below eye to auriculars.

Eggs — Eight to ten, pea-green, measuring 2.20 by 1.70 inches.

Habitat — Eastern hemisphere, from the Mediterranean basin to Turkestan and India, breeding irregularly north to Scotland, the Kola Peninsula, and on the Yenisei River, Siberia, to within the Arctic circle. Accidental in eastern United States.

The only claim of this species to rank as an American bird is that on February 2, 1872, Mr. George A. Boardman found a young male in Fulton Market, New York, and this bird is believed to have been shot on Long Island Sound.

It is a rather shy and solitary bird, not found in large flocks or associating much with other ducks. Not being an expert at diving it frequents shallow, fresh-water marshes, feeding on water-plants of various kinds. It breeds on small islands in the Rhone Delta of southern France, where Mr. W. Eagle Clarke found two nests on May 17, 1894. They were on the ground in the centre of thick and tangled masses of shrubbery, and were reached by covered passages fully two feet long, which had been worked through the bottom of the bushes. These nests, composed of down, held ten and seventeen eggs; but

the latter were doubtless laid by two females, as they differed in size and color. The males were swimming near these islands and impressed Mr. Clarke with their great beauty, their crests looking as if "fringed with gold."

RED-HEAD

(*Aythya americana*)

Adult male — Head and neck, rich reddish brown, glossed with purple; lower neck, chest, upper parts of back, rump, and upper and lower tail-coverts, black; remainder of back, sides, and flanks, grayish white, finely undulated with black; wing-coverts, gray; speculum, ash-gray, bordered above with black, and posteriorly with white; tail, dark brown; under parts white, growing gray toward under tail-coverts; bill, broad and flat, rising at the base abruptly to the forehead; slate in color and crossed by a black bar near the tip; iris, orange; legs and feet, plumbous; webs, dusky.

Measurements — Length, 19.50 inches; wing, 9 inches; culmen, 2.10 inches; tarsus, 1.40 inches; bill .80 inch in width.

Plumage of male in post-nuptial dress similar to female.

Adult female — Head and neck, pale brown, darkest on top; chin and throat, white; cheeks, grayish brown; back and scapulars of the same color; feathers tipped with light gray; wing-coverts, light gray; speculum, ash-gray; lower back, dark brown; chest and sides, gray-brown; feathers of abdomen broadly edged with whitish; bill, slate with a black nail; legs and feet, slate; webs, dusky.

Measurements — Length, 19 inches; wing, 9 inches; culmen, 2 inches; tarsus, 1.35 inches.

Downy young — Top of head and upper parts, olive with a yellow spot on the sides of body and rump and on the borders of wings; sides of head, neck, and lower parts, buff.

Eggs — Eight to twenty in number, grayish white, and measure 2.40 by 1.70 inches.

Habitat — Breeds from Michigan, possibly Indiana, Minnesota, Nebraska, Missouri, possibly Colorado, Utah, Nevada, and California, and reported as breeding in Maine, north to the fur countries west of Hudson Bay, Saskatchewan, Alberta, and British Columbia. Winters from Maryland, rarely north to Massachusetts, Mississippi, Louisiana, Texas, Wyoming, Arizona, Nevada, and British Columbia, south to the West Indies, Mexico, and Lower California. In the migrations, found occasionally on the Atlantic, north to the coast of Labrador.

The red-head is an associate of the canvas-back in many localities and a close second in popularity. The same persecution along the eastern coast has decimated the flocks and driven the birds away, yet small numbers are still seen in their old haunts, while the canvas-back are practically gone.

The lakes and watercourses of our Western states were the former resorts of countless myriads of these birds, and even now in Minnesota, Dakota, and Montana the red-head is still abundant, breeding in the prairie sloughs, and north into Manitoba on the shores and islands of wild marshy lakes. Here red-heads breed in colonies by themselves or in the company of mallards. The nest is somewhat elevated, constructed of grass and loose material, carefully canopied over, frequently built up from the bottom in shallow water among clumps of rushes. The eggs are eight to twenty in number, and with them are occasionally seen those of the ruddy duck. Incubation is begun in early June, and the duck is left

in charge alone, her mate disappearing to moult and change his dress, going into a brown plumage for the summer. The marshes of central North America through the fur countries afford breeding-grounds for numbers of red-head. The young are fledged in late August, and many are killed near their nesting-places, as they are not wild and are readily approached. In North Dakota a hunter can easily tire of shooting, but destruction of this sort now is fortunately prevented by well-enforced game laws. If other Western states protected their wild fowl against the ravages of the pot-hunter and the wanton sportsman in the same efficient way, much would be accomplished in preserving our wild duck.

In the fall of 1894, near Sanborn, North Dakota, warm weather had persisted until late September, when the first frost came. A few days later, about October 1, I noticed the first flocks of flight red-head. These passed over high up, for the most part far out of range. The few we killed were all old males with well-marked traces of the summer plumage. This was most apparent in the brown feathers of the head and breast. By the middle of October they appear on the marshes of the West, and are common from the Great Lake states to the Rocky Mountains, and along the Missouri and Mississippi valleys to the states bordering on the Gulf of Mexico.

Numbers remain in Illinois, Iowa, and Missouri until driven farther south by cold weather. In November and December they are found in Texas and in the bays and lagoons along the Mexican coast. The red-head is numerous in California and Colorado; abundant in the valley of the Salt Lake, passing into Mexico, where it winters on the interior lakes and along the Pacific Coast. These birds reach the Chesapeake early in November, crossing the interior and not following to any extent the Atlantic coast-line. They winter off the coast of North Carolina, remaining until March, some passing as far south as Florida and the Bahamas. On the Chesapeake they feed on the vallisneria, and under these circumstances the flesh equals that of the canvas-back. The red-head has many of the habits of the canvas-back, and is killed in the same way, — from blinds on the points along the line of flight, batteries off-shore, or brush blinds staked out in shallow bays on their feeding-grounds. In Currituck and Pamlico sounds the regular method of shooting is from batteries and brush blinds. The brush is set out and left unused for some time until the birds become accustomed; then, when the opportunity offers, at the first streak of dawn the skiff is pushed out of sight in the brush tops, well surrounded by stool. The first small flocks of six or eight soon appear, usually taking some certain

course. Once within sight of the decoys, one or two ducks turn in on set wings; another instant and the flock hover in front. When startled, they often spring together, and the gunner of experience waits for this chance. Red-head come to decoys with a grace few ducks possess, if only they decide to come; but many times in full sight of the stool they turn neither to right nor left, keeping the same aggravating course, just out of range.

These birds hail to a red flag almost as well as the broadbill, but at the present time of more gunners than ducks, tolling is seldom used.

On Long Island the red-head is found in small flocks. The eastern end of Great South Bay and of Shinnecock Bay for the past two years have been the resort of these birds. North of Long Island, along the coast, this species is rare. In Connecticut the red-head I have seen have usually been in flocks of the large broadbill, and several birds in my possession were shot under these circumstances. In March, 1900, five red-head were killed on Lake Saltonstall, near New Haven. In the spring of the year these birds are killed in large numbers in certain places along the Mississippi and its tributaries, when the woods are flooded. The red-head is a high, fast flyer, a gentle whistling marking the flight. Occasionally a low quack is heard, but generally the bird is

silent. They dive and skulk with a skill that saves many a wounded bird. The similarity in size and marking of the red-head to the canvas-back has made it possible to substitute it for the latter. The bill always distinguishes the birds, being broad and flat in the red-head and long and thin in the canvas-back.

This species is also known as the raft-duck and pochard.

CANVAS-BACK

(*Aythya vallisneria*)

Adult male — Top of head and feathers at the base of bill, black; rest of head and neck, brownish red; upper part of back, chest, and upper and under tail-coverts, black; wing-coverts, gray, vermiculated with white; speculum, gray; tips vermiculated with white, and inner feathers edged externally with black; rest of plumage, white, finely undulated on the back with black; bill, narrow, widening slightly toward the end and longer than the head, black in color; tail, black; iris, red; legs and feet, slate.

Measurements — Length, 20 inches; wing, 9.10 inches; culmen, 2.40 inches; tarsus, 1.70 inches.

Adult female — Head, neck, and upper part of back, brown, rest of back, darker; tips of the feathers undulated with white; under parts, white; speculum, gray tipped with white, inner feathers edged with black on outer web; tail, dark brown; iris, brown; bill, black; legs and feet, slate.

Measurements — Length, 20 inches; wing, 9 inches; culmen, 2.25 inches; tarsus, 1.50 inches.

Downy young — Upper parts, brown, with buff spots on sides of chest, lower back, and rump; space around eye, sides of head and neck, and lower parts, buffy white.

Eggs — Six to ten in number; pale gray green in color, and measure 2.50 by 1.80 inches.

Habitat — Breeds from Minnesota, Nebraska, Colorado, Nevada, Oregon, and British Columbia, north to Fort Anderson and Fort

Yukon. Winters in Maryland, Virginia, and North Carolina, formerly abundantly, now rarely; occasionally south to Florida and straggling to the West Indies; and from western New York rarely, Pennsylvania, Kentucky, Illinois, Colorado, Arizona, and British Columbia, south to California, Mexico, Central America, and the Gulf Coast. In the migrations occurs on the Atlantic Coast rarely, north to New Brunswick and Nova Scotia, and in Bermuda.

The story of this duck on our eastern coast is one of days that are past. In the halcyon times when Chesapeake Bay and the canvas-back duck were words inseparable, the winter home was here. The large flocks arrived about the middle of November, tired and thin from their long flight; they gathered on the bars offshore, rising only when disturbed, feeding on the beds of tape-grass or vallisneria (not the wild celery, as popularly supposed). On this diet the flesh attained its highest degree of excellence. In December the birds had fattened and become more active, passing up and down the bay to and from their feeding-grounds in morning and evening flights, keeping well offshore in fair weather, leading over the points when driven by wind or storm. The more famous locations were the Narrows, Taylor's and Abbey islands on the western shore, Miller's Island, and Carroll's Island. When driven from the bay by constant shooting, they resorted to the larger rivers. Blinds and decoys in all possible locations, batteries and sink-boxes offshore, awaited

them. They were drifted on when gathered on their feeding-grounds. At night bedded on the resting-places, the rafts of ducks were shot into by means of large-bore guns or cannon as they huddled together in front of the gunner's light. Occasionally they were taken in gill nets offshore. Eagerly sought for and greedily hunted, killed by every device known to man, this bird, the noblest of all our water-fowl, has been driven from its old haunts; and the Chesapeake Bay knows it no more.

The few flocks occasionally seen in the vicinity now bear sad testimony of the wanton destruction of the past. Farther south, along the coast, canvas-back still winter in some numbers, but are seldom killed in any quantity, and then only in heavy weather, or when ice holes afford a limited feeding-ground. A few are found on the James River. In 1893, when scarcely a canvas-back was killed on the Chesapeake, there were large flocks on the James. They often bedded in the coves across the river from Westover, in fair weather keeping well out in the centre, flying up and down morning and evening. In a heavy snowstorm on Christmas day we shot them from brush blinds on the south shore. There are few more stirring sights than flocks of canvas-back leading up within range of the blind, flying in wedge-shaped lines high in air; as they come

nearer, the white back and red neck mark them. They see the stool, and the flock wheels; two or three leaders turn toward the decoys, and the others follow. When alarmed, they rise high up, and their powerful flight soon takes them beyond danger. If wounded, the bird is quick to dive, and swims a long distance under water, showing the top of the head or bill, and then only for an instant.

In Currituck and Pamlico sounds the canvas-back are rarely shot from the points of marsh, but almost entirely from batteries and bush blinds far offshore. Nowadays a bag of ten or fifteen ducks represents a good day's shooting. Formerly, all through the winter and well into the spring, the canvas-back remained in the waters of Virginia and North Carolina, leaving for the north in April.

The breeding range is from Oregon and the northern portions of the western United States to the northern limits of the fur countries on the interior bodies of water. It has been found nesting in the mountainous portions of northern Oregon and California, Montana, and Dakota, in the Devil's Lake region, on the Anderson and Fraser rivers, and in numbers on the Yukon. Arriving at its breeding-ground late in May, by the middle of June incubation is well started. The nest is made from rushes and grass built up from shallow water, and is situated in clumps of

rushes out in the sloughs, its top being canopied over with the same material. The eggs are deposited before construction is complete, and are from seven to ten in number. Occasionally the eggs of the red-head and ruddy duck are found in the same nest. Soon after incubation has been begun the male leaves the duck and, seeking the seclusion of larger neighboring bodies of water, moults, losing the characteristic attire of spring, the plumage at this time being a dull brown.

The ducklings are hatched in July, and quickly become expert in hiding and diving, soon leaving the more protected resorts of their nesting-places. When full-fledged they frequent more open water and the deeper, larger lakes. Here they are joined by other families, and the flocks form. With the cold nights and first frosts of early fall they push along, and by late September the advance flight is in evidence along the northern boundaries of Montana and Dakota. These birds are nearly all females and young. It is early October before we see the flocks of old birds. The migration from the North is over the watercourses of the interior, until near the boundaries of the United States; here some birds strike the Pacific shore, a large body pass over the prairie to Texas and Mexico, wintering on the larger inland bodies of water and along both coasts to Central America. Another smaller

flight is over the Great Lakes to the Chesapeake and south. This is the course of those birds wintering on the Atlantic Coast.

North of the Chesapeake, on the Atlantic, the bird has always been scarce. It is now occasionally killed on Long Island by battery gunners. A few are sometimes taken in Barnstable County, southeastern Massachusetts. Dr. Woods has obtained them on the Connecticut River. Two adult males were brought to me, killed on Lake Saltonstall, near New Haven, December 25, 1901.

Throughout the West canvas-back have been driven from the thickly populated states; on the rivers and lakes of Illinois they no longer abound. In the prairie states, and in Colorado and California, however, they are still killed in considerable numbers. They are not superior for the table to many of the commoner ducks.

In the spring of 1901, late in April, I was surprised to see several flocks of canvas-back near Tampico, Mexico. They were wilder than the other ducks, but allowed us to approach surprisingly near. Throughout the interior of Mexico this bird is common, but does not frequent the smaller sloughs with the thousands of other duck, choosing the small lakes more inaccessible from the ranches.

The canvas-back is known by the names whiteback, bull-neck, and in New Orleans, cheval.

SCAUP DUCK

(*Aythya marila*)

Adult male — Head, neck, front of back and breast, black; head and neck with metallic green reflections; lower part of back and rump and under tail-coverts, black; middle of back, scapulars, and anal region, white with black undulations; wing-coverts, black, finely barred with white; speculum, white, bounded in front by black line; tail, blackish brown; belly and sides, white; bill, blue-gray; nail, black; iris, yellow; legs and feet, plumbeous.

Male in summer — Similar to female, but head blacker and back whiter.

Measurements — Length, 19 inches; wing, 8.40 inches; culmen, 2 inches; tarsus, 1.40 inches.

Adult female — Forehead and sides of head at base of bill, white; rest of head, neck, and breast, brown; upper parts, dusky brown; back and scapulars, undulated slightly with white; wings, brown, with white speculum; belly, white; under tail-coverts and anal region, dark brown; iris, bill, and feet, as in the male.

Measurements — Length, 19 inches; wing, 8.40 inches; culmen, 1.75 inches; tarsus, 1.40 inches.

Downy young — Similar to the Lesser Scaup.

Eggs — Eight to twelve in number, pale olive-gray, and measure 2.55 by 1.70 inches.

Habitat — Northern parts of northern hemisphere, breeding far north, and, in the eastern hemisphere, wintering south to the Mediterranean, Japan, China, and Formosa. In North America, breeds from the Magdalen Islands, Manitoba, Assiniboia, Alberta, and British Columbia, possibly Michigan, Minnesota, Iowa, and Oregon, north to Labrador, Hudson Bay, probably Fort Anderson, Kotzebue Sound, and the Yukon Delta, Alaska, and the Aleutian Islands. Winters from Maine to Florida and the Bahamas on the Atlantic Coast; on the Gulf Coast; and from Colorado, Arizona, and Nevada, south to Guatemala; and on the Pacific Coast on the Aleutian Islands, and from British Columbia to California. Rare in the migrations in Newfoundland and Nova Scotia.

While the greater broadbill, or scaup, occurs throughout North America, it is especially a bird of the eastern coast, Chesapeake Bay marking the common limit of its southern range. The close relationship between the greater and the lesser broadbill has led to considerable confusion as regards the distribution of species. South of the Chesapeake Bay and inland it is replaced by the lesser variety. The summer home of the broadbill is far in the North, along the farther shores of Hudson Bay, Greenland, and Alaska. The nest has been taken as far south as the Magdalen Islands. It is roughly constructed of grass and drift placed in a mere depression on the ground. The eggs are covered well with down and cared for entirely by the duck, for during incubation the drakes associate by themselves. Late October and early November mark their arrival on the New England and Long Island coasts; the first small flocks are swelled in size by newcomers, and the late fall finds them well established in winter quarters. They soon accustom themselves to surroundings and become wild and hard of approach, in calm weather gathering in vast flocks far out in the bay, passing to and from their feeding-grounds in a characteristic undulating line, — if near land or disturbed by boats, keeping high in air. Under these circumstances batteries anchored out in the bay along their line

of flight bring the smaller flocks in range. Sometimes they drop to the stool when high overhead, coming up to the decoys gracefully and tumbling over themselves to settle among the wooden congregation. If wounded, they dive almost at the flash, and swim a long distance under water, appearing at the surface for an instant with just the head showing.

When stormy weather protects them from constant gunning, they gather in vast flocks seeking more sheltered water. The first clear day may offer the opportunity. Be early. As the duck-boat is quietly pushed out of the harbor to the outer islands the birds seem in thousands, rising in front and on all sides, leaving the water with a loud splashing; then the whir of wings, and they are gone. Now the first streak of light shows the black shadow of a flock close by. The first impulse is to shoot, the next to reach the blind. It seems an age before the decoys are set and everything is ready. Presently a flock leading by the decoys calls for attention. It is still a little early, and the stools hardly show; now four birds hovering in front call forth the first two shots. The silence is broken, flock after flock of frightened, bewildered birds leave the water, circling, then passing on. Soon the wavy lines far off mark the departed; but your patience is not long taxed, a small flock return and presently another, follow-

ing each other in the same precise line. The shooting is constant, and the gun grows hot; but pick up your birds quickly, and don't waste time, for the flight is thick and fast, but short, and broadbill do not make mistakes often.

This bird is highly prized by gunners of the eastern coast, and when vegetable matter and the various grasses found on the flats and bars comprise its diet, the flesh is excellent. Often the food consists of barnacles and crustacea, which impart a slightly fishy flavor to the flesh.

This species is also known as greater scaup duck and bluebill.

LESSER SCAUP DUCK

(*Aythya affinis*)

Adult male — Head, neck, and front of body, black, with metallic purple reflections on head; back and scapulars, white, barred with narrow black lines; wing-coverts, dusky, mottled with white; speculum, white; rump and upper tail-coverts, black; breast and abdomen, white; sides, white, marked with dusky; tail, black; bill, slate; nail, black; legs and feet, slate; webs, black; iris, yellow.

Measurements — Length, 16 inches; wing, 8 inches; tail, 3 inches; tarsus, 1.30 inches; culmen, 1.70 inches.

Adult female — Space at base of bill, white; rest of head and neck, brown; upper back and breast, umber-brown; wings, dark brown; speculum, white; under parts, white; rump and upper tail-coverts, dark brown; bill and feet, slate; webs, dusky; iris, yellow.

Measurements — Similar to male.

Downy young — Upper parts, dark brown, with buff spots on side of back and rump; lower parts, buff; forehead and side of head,

brownish buff; narrow brown ring across neck in front connecting with brown of upper parts.

Eggs — Eight to twelve in number, pale gray buff tinged with olive, and measure 2.30 by 1.50 inches.

Habitat — Breeds from Nova Scotia, Pennsylvania, Michigan, Illinois, Minnesota, North Dakota, Assiniboia, and Alberta, and probably New York, West Virginia, Ohio, Indiana, and Wyoming, north to Hudson Strait, Fort Anderson, and the Yukon Valley, Alaska, and probably in Greenland. Winters from New Jersey, rarely Massachusetts, Lake Erie, Louisiana, Texas, Colorado, Arizona, Nevada, and British Columbia, south to the West Indies, Guatemala, and Lower California. Not known to breed in New England, New Brunswick, Quebec, and Ontario. Accidental in Europe. Occurs in Bermuda.

For a long time this species was not differentiated from the preceding, and considerable confusion resulted. It can readily be distinguished by its smaller size, the bill and feet being noticeably smaller and especially the breadth of the nail of the bill. The head has a distinctly purple sheen instead of the green of the greater broadbill. We find the lesser broadbill well dispersed throughout the United States; in fall and winter occurring on inland lakes and rivers, where it often goes by the name of pond or creek broadbill. It continues south through Mexico to Guatemala, and is found along the South Atlantic Coast below the Chesapeake, common in Florida and the Gulf of Mexico. North of the Chesapeake this bird is more rare. Most of the instances of its occurrence in New England that have come under the writer's observation

have been in the early fall, and then generally in the company of the greater scaup.

The lesser broadbill breeds along the Yukon and Anderson rivers and through the Arctic regions north of Hudson Bay. The nest has been taken as far south as Dakota. Marshes and swamps of the fresh-water lakes close to the coast are the favorite resorts in the North. The nest is constructed in a rude manner of grass and rushes well lined with down. Early July is the breeding-time. According to MacFarlane, the male bird is found with its mate well along in the period of incubation. Early in October the first flocks appear within our boundary, and by November they are common throughout the West and along the southern coast. The lesser broadbill possesses all the habits of its near relative, but is found more often on the shallow bays and in smaller bodies of water. They come well to decoys and are occasionally baited by grain scattered on their feeding-ground. If these ducks have fed undisturbed for a short time under such circumstances, they return so persistently to the spot that a large proportion of the flock are killed. Curiosity, a trait associated with disaster, is not wanting in both varieties of broadbill. If the situation favors, a red flag is gently waved from a place of concealment. The flock at once notices it, the birds become restless, soon one or two swim near,

others follow, and if the tolling is carefully managed they are brought within close range.

On Currituck Sound in 1895, I saw several hundred broadbill killed in the vicinity, all of this species. They frequent the larger rivers near the coast. While hunting on the James River one day in December from a brush blind in one of the bays, I noticed a small flock of broadbill late in the afternoon leading up a creek near by. They were soon followed by another, and continually until dark, little bunches of these birds coming from the same direction in the same line, disappeared through the woods, evidently going to some pond farther in for the night. The lesser broadbill winters in Florida and along the Gulf Coast, and in places where protection is afforded they become very tame, in some instances staying near the hotels and winter resorts.

Their extensive distribution gives them a number of different names, and this species is variously known as little broadbill, lesser scaup duck, little bluebill, little black-head, river broadbill, raft-duck.

RING-NECKED DUCK

(*Aythya collaris*)

Adult male — Head, neck, breast, upper parts, and under tail-coverts, black, with a sheen of reddish purple on the head, which has a slight crest; a narrow chestnut collar around the middle of the neck; a small triangular white spot on the chin; wings, dark brown with a green gloss; speculum, gray; under parts, white,

the flanks and side waved with fine black lines; bill, black, crossed by a bar of slate; legs and feet, slate; webs, dusky; iris, yellow.

Measurements — Length, 17.50 inches; wing, 8 inches; tail, 3.40 inches; culmen, 1.90 inches; tarsus, 1.25 inches.

Adult female — Top of head and back of neck, dark brown; sides of head, grayish white spotted with dusky; forehead, throat, and neck in front, yellowish white; sides of neck, light brown; back and wings, dark brown; speculum, gray, edged with white; lower back and rump, black; upper breast, sides, and flanks, yellowish brown; lower breast and belly, white; bill, iris, and feet, as in the male.

Measurements — Length, 16 to 18 inches; wing, 8 inches; culmen, 1.25 to 2 inches; tarsus, 1.30 inches.

Male in breeding season goes into dull plumage resembling female.

Downy young — Top of head, neck, and upper parts, dark grayish brown, rest of head, neck, and lower parts, pale buff; a spot of light buff in the centre of the back and on each side of the back and rump.

Eggs — Nine to twelve in number, grayish or buff in color, and measure 2.10 by 1.65 inches.

Habitat — Breeds from Illinois, Iowa, North Dakota, Utah, and Oregon, north to the Mackenzie River and probably Fort Anderson, and reported in summer at St. Michael, Alaska, and on the Aleutian Islands. Said to have bred in Maine. Winters from New Jersey, Illinois, Nevada, British Columbia, and the Aleutians, south to the West Indies, Guatemala, and Lower California. Occurs in migration north on the Atlantic to Newfoundland, Nova Scotia, and Quebec, and it has been recorded from England and Bermuda.

The ring-neck as compared with other ducks is nowhere a common variety. It is most abundant through the Western states and Mississippi Valley, and is found sparingly along the Pacific Coast. On the Atlantic Coast it is taken most frequently

in the Southern states. Occasionally there has been quite a spring flight through Illinois and the adjacent states, numbers finding their way to Chicago markets. In Maine and Massachusetts the ring-neck is sometimes taken. In southern New England it is rare; and the writer knows of but two specimens killed in Connecticut: one was an adult male shot in the winter of 1886 in a small pond near New Haven, the other a young male killed on Lake Saltonstall, December, 1900. South it is more abundant, and on the large sounds off Virginia and North Carolina a few are shot, although the inland rivers and ponds seem to be their favorite abode. In Georgia, Florida, and along the Gulf of Mexico the ring-neck is found in small flocks.

The breeding-ground is in the far North, but the bird has been found on our northern border, in Dakota and other of the Western states, and in Maine, in the vicinity of Calais, by Mr. George Boardman. Here in the summer of 1884 he took a nest with eleven eggs. It was placed among the reeds and thick grass on the banks of the St. Croix River, and was constructed of grass without down. The birds appear within the United States early in November, and while going far south, a few stay through the winter in the Northern states until the last ice holes freeze. They are seen in small flocks of from six to twelve, keeping pretty

much to themselves; but sometimes they associate with the lesser broadbill, whose habits they much resemble. The ring-neck is a strong flyer, rising easily and quickly from the water, the flight having the wavy appearance of the broadbill. They come readily to decoys, but are a difficult mark, and when wounded readily escape by diving, swimming well under water, showing just the head when coming to the surface. A low, guttural note is heard at times, but the birds are usually quiet. The flesh is excellent. Other names for this species are tufted duck, ring-bill bastard, ring-bill black-head, ring-neck scaup, ring-bill shaffer.

AMERICAN GOLDEN-EYE

(*Clangula clangula americana*)

Adult male — Head, occipital crest, and upper part of neck, glossy green with sometimes violet reflections; a large, oval, white spot close to the base of bill on each side; lower part of neck, upper part of back, greater wing-coverts, and under parts, pure white; rest of upper parts, long scapulars, and some secondaries, black; tail, ashy; bill, black; feet, yellowish; webs, dusky; iris, yellow.

Measurements — Length, 20 inches; wing, 8.85 inches; tail, 4.50 inches; tarsus, 1.50 inches; culmen, 1.60 inches.

Adult female — Head and upper part of neck, brown; a slight occipital crest; a narrow collar on neck of white, streaked with gray; back, dark brown; feathers on upper back, edged with gray; those of upper tail-coverts, tipped with pale brown; white on wings not so extensive as those on male; tips of greater wing-coverts, black, forming a bar across the white; a band of bluish gray across upper part of breast; under parts, white; thighs, dusky; tail, brown; bill, dull yellow, varied with brown; iris, light yellow; legs and feet, yellowish; webs, dusky.

Measurements — Length, 17 inches; wing, 8 inches; tail, 4.50 inches; culmen, 1.30 inches; tarsus, 1.40 inches; height of bill from point of angle to nearest cutting edge less than the distance between the farthest edge of the nostril and nearest feathers at base of bill; in distinction from female Barrow's golden-eye.

Young male — Similar to female, but larger, and head not crested.

Downy young — Upper parts, including the upper half of the head, sides, and thighs, deep, sooty brown, lighter on the jugulum. Four pair of grayish white spots, situated one on the posterior border of each wing, one on each side of the back, one on each side of the rump, one on each flank; chin and throat, white; remaining lower parts, grayish white.

Eggs — Ten to seventeen in number, bright pea-green in color, measure 2.40 by 1.70 inches.

Habitat — Breeds from Maine, New York, Minnesota, North Dakota, Montana, probably Colorado, Alberta, and British Columbia, north to Newfoundland, Labrador, Hudson Bay, the Mackenzie Delta, Yukon Valley, and Cook Inlet, Alaska. Winters from New Brunswick, Maine, New York, Ohio, Indiana, Michigan, Minnesota, Nebraska, Texas, Utah, Nevada, British Columbia, and the Aleutian Islands, south to the West Indies, Mexico, and California. Occurs in Bermuda.

We associate this sprightly duck with cold weather. The smallest ice holes, when all the bays and lakes are frozen, give it a chance for a livelihood. The golden-eye remains fat and contented under these circumstances, when other members of the duck family quickly show the results of starvation rations. This bird has a wide acquaintance; in summer the Eskimo, in winter the Florida Indian and the Mexican, with all varieties of gunners in between. The American golden-eye is common on the lakes and streams of the

Rocky Mountains, the Pacific Coast, throughout the interior, and along the Atlantic.

The breeding range is from the northern United States to the Arctic sea. Small streams and lakes are their favorite resorts; here they select a hollow tree at a comfortable distance from the nearest water and raise their brood. The female undertakes their entire charge and teaches them the golden-eye tricks. In the summer of 1895, while travelling through the Cascade Range in British Columbia, we found nearly every small lake had its brood of golden-eye. It was early in August, and the birds were not fledged. The flocks were surprisingly large, in some instances consisting of twenty or more young ducks, and with them one old bird. When disturbed, the duck at once flew to the farther end of the pond, directing the course of the young ones by a guttural note, which I have never at other times heard from the golden-eye. They breed commonly as far south as northern New England, often frequenting the same lakes and streams as the American merganser.

The golden-eye are in no hurry to leave their northern home, and we hardly see them on the coast before late October. They come in small flocks, keeping pretty much to themselves, and frequent the shallow, sandy bays, feeding on the flats and bars, often going up the rivers to spend

the day; always wary and suspicious, remaining in open places, and seldom trusting themselves in range of land. These birds in the fall do not often come to decoys. When the harbors are frozen, and the current or tide leaves a little open water, the opportunity is afforded. There is no colder shooting. A small, white ice-boat is a convenient contrivance for this purpose. It is rigged on a sled and pulled out to the edge of the ice. The ducks are there and loath to leave. They begin to return almost before the few decoys are set and you have finished warming your fingers. There are few sounds more attractive than their whistling wings, heard and not seen, in the cold gray of dawn, — so close overhead, you feel the birds must be in sight even in the dim light. All is ready; soon you see a flock high up, coming with speed. The flight is unmistakable, and the white breasts of the birds noticeable. They circle and plunge into the decoys, but are up again and off almost before the shot. A frightened bird still sits among the stool; you wait for him to follow his comrades, but he dives, coming up well out of range. They come in nicely, but the bag is small and well earned, for the cripples are difficult to kill, and the cold makes you slow.

The golden-eye subsists on a variety of food, — small shellfish and crustacea and various vege-

table matter, in the South delighting in the rice-fields; hence the character of the flesh varies. Among the wildest of our ducks, they are quick to appreciate protection. On the Charles River, flocks of these birds are seen through the winter feeding in close proximity to the docks and bridges of Boston.

The golden-eye has a variety of names: whistler, whistle wing, whiffler, spirit duck, bullhead; in Louisiana, plongeur.

BARROW'S GOLDEN-EYE

(*Clangula islandica*)

Adult male — Head, crest, and upper part of neck, glossy bluish black with blue reflections; a crescentric-shaped white patch at the base of bill; lower part of neck and under parts, pure white; upper parts, black; outer row of scapulars, with oblong white spots; a lengthened white patch on the wing; bases of greater wing-coverts, black, forming a bar across the white portion; feathers of sides and flanks, white with outer edges black; tail, black; bill, black; feet and legs, orange, with dusky webs; iris, yellow.

Measurements — Length, 22 inches; wing, 9 inches; tarsus, 1.50 inches; culmen, 1.30 inches; height of bill, at base, 1 inch.

Adult female — Head and neck, brown, darkest on top of head and back of neck; a narrow white collar at base of neck; upper parts, brownish black; feathers of back, edged with gray; white patch on wing, crossed by black bar; upper part of breast and sides, gray; rest of under parts, white; bill, horn color; legs and feet, pale orange; webs, dusky.

Measurements — Length, 20 inches; wing, 8.40 inches; culmen, 1.50 inches; height of bill at base, .90 inch.

This bird resembles the female of the common golden-eye, but is somewhat larger. According to Ridgeway, it can be distin-

guished by the height of the maxilla as compared with the distance from the feathered edge at base of the bill to the anterior edge of nostril. In the female Barrow's golden-eye these measurements should be equal.

Downy young — Top and sides of head, brown; neck, chest, and sides, pale; throat and under parts, white.

Eggs — Six to ten in number, grayish pea-green in color, and measure 2.40 by 1.60 inches.

Habitat — Breeds from Quebec and Washington, the mountains of Oregon, south in the Rocky Mountains to Colorado, north to Chilkat Peninsula, Alaska, Fort Anderson, and southern Greenland, and in Iceland. Winters chiefly north of the United States, from southern Greenland and southeastern Alaska, rarely to North Carolina, Ohio, Indiana, Illinois, Minnesota, South Dakota, Colorado, Utah, Idaho, Oregon, and California. Accidental in Europe.

The Barrow's golden-eye is one of our rarer ducks. The full-plumaged male is a showy bird, the soft steel-blue sheen of his crest and the bright black and white of the back being a marked contrast to the brown and white of his mate. This bird ranges from Arctic America to the northern border of the United States and breeds throughout these limits. We see the Barrow's golden-eye among the lakes and rivers of the Rocky Mountains, from Colorado north through British Columbia to Alaska. The breeding-ground is often in mountainous districts, the bird choosing the hollow of a tree near some stream or lake for its nesting-place. In the writer's collection a set of eggs from Iceland bears the following label: "Myvatis, June 23,

1889, nest composed of down and feathers, located in a box fastened to a tree." In Iceland the bird is not uncommon and often breeds in holes in the ground at a considerable depth, where trees are scarce. Mr. Edwin Carter of Colorado probably first discovered the nest and eggs in this country. In 1876 he took a set of ten, and since then has repeatedly seen the young brood. On the Atlantic coast the Barrow's golden-eye is taken regularly in Maine and New Brunswick. Professor D. G. Elliot at times has found it numerous on the St. Lawrence near Ogdensburg, and has here killed it over decoys. Both species were associated on the river, the flight being up and down in the direction of Lake Erie, the birds stopping occasionally in the coves to feed, and floating down with the current.[1]

On the coast of Massachusetts the Barrow's golden-eye is rare. In the collection of Mr. William Brewster are several birds from Boston markets killed in the vicinity. Along the southern New England coast it is seldom met with, and I have never seen a specimen from Long Island Sound, although from descriptions of gunners there is no doubt it occasionally occurs. The bird is possessed of all the habits of the common golden-eye, flying high and fast, with the same shrill, whistling flight. It is a quick diver, dis-

[1] "Wild Fowl of North America," by D. G. Elliot.

appearing often at the flash; when wounded swimming a long distance under water, appearing a second at the surface, and disappearing before there is time to raise a gun. The flesh, like that of the common golden-eye, is frequently fishy, although when the birds have frequented fresh-water ponds and lakes this flavor disappears. The species is known also as the Rocky Mountain golden-eye or garrot.

BUFFLE-HEAD

(*Charitonetta albeola*)

Adult male — A broad, white band extends from behind and beneath the eye to the occiput; rest of head and whole of neck, glossed with green, violet, and bronze reflections; the feathers of the head are puffed out on sides and back; lower part of neck, entire under parts, a large patch on wing composed of wing-coverts, and outer webs of secondaries, and scapulars, white; primaries, black; back and rump, black, fading into pearl-gray of the upper tail-coverts; tail, dark gray, with white edges; bill, slate; nail, black; iris, dark brown; legs and feet, flesh color.

Measurements — Length, 14.50 inches; wing, 6.50 inches; culmen, 1.20 inches; tarsus, 1.20 inches.

Adult female — Head and neck, dusky; top of head, blackish, a white stripe on cheeks and ear-coverts; upper parts, blackish gray, grading into black on the rump; apical half of outer webs of secondaries, white, forming speculum; upper parts of breast, sides, anal region, and lower tail-coverts, dull gray; rest of under parts, white; tail, gray; bill, dusky; legs and feet, slate; webs, dusky; iris, brown.

Measurements — Length, 13.50 inches; wing, 5.90 inches; culmen, 1 inch; tarsus, 1.10 inches.

Plumage of male in the first year resembles female, but the feathers of the head are more puffed.

Eggs — Seven to ten in number, of a grayish white color, with a tinge of green, and measure 2 by 1.45 inches.

Habitat — Breeds from New Brunswick, Maine, Ontario, Manitoba, Montana, Alberta, and British Columbia, and probably Michigan, Minnesota, Iowa, Wyoming, and Colorado, north to Labrador, Greenland, Hudson Bay, the lower Mackenzie, and the upper Yukon. Winters from New Brunswick, western New York, Ohio, Indiana, Michigan, Illinois, Missouri, Colorado, Idaho, British Columbia, and the Aleutian Islands, south to Cuba, Mexico, and Lower California. Recorded also from Nova Scotia and Newfoundland, Bermuda, Great Britain, the Alaskan coast of Bering Sea, Bering Island, and Hawaii.

This sprite is always a pleasure to see. The male with his buffle head of white and violet can well be proud of his plumage. Lightly and gracefully floating on the water's surface, if occasion requires he dives like a flash or springs into the air with the speed of a teal. The female is plain and insignificant, except in her power to get through space. The species is widely distributed through North America, its range extending to the Arctic region. In the North, on account of its traits, this species is known as spirit duck.

The breeding-ground is as far south as the northern border of the United States, and from Alaska to Greenland. The nest has not been found often. It is generally in the hole of a tree near the water's edge. Mr. Lockhart describes a nest from the Yukon River. It was in the hollow of a rotten stump near the bank, and contained nine eggs. The same gentleman discov-

ered a second nest on the Black River, June 7. It was in the hollow of a poplar tree some twenty feet from the ground. The hole was dug out like a woodpecker's, an arm's length in depth, and contained ten eggs. In early October we find them generally distributed throughout the United States. The females and young predominate at first. Inland, the smaller bodies of water, lakes, and rivers are their favorite haunts. They are seen usually in small flocks by themselves, diving near the shore for their food, and can readily be approached. Generally one or two birds remain on the surface, ready to give an alarm, and if startled they take quick leave. The butterball is common on both coasts, and is fond of shallow, sandy bays, frequenting the tide-rips and mouths of rivers, remaining through the coldest weather. A few years ago this bird was common all along the New England shore. Large numbers wintered on the Sound between New Haven and Stratford, where the coast is shallow and sandy, early in the morning leaving the outer flats and feeding up the rivers. It was a simple matter to shoot them on their flight, as they came over the bars, low down and usually in the same course. Recently the butterball seem to have largely disappeared from the New England coast, though still common on bays farther south. They are conspicuous as being the least, but by no means last, of our wild-

fowl family. The other common names for this species are butterball, butterbox, dipper, spirit duck, marionette.

OLD-SQUAW

(*Harelda hyemalis*)

Adult male in winter — Lores, cheeks, and orbital regions, mouse-gray; rest of head, eyelids, lower part of neck, upper part of jugulum, and back, white; side of neck, black, ochraceous posteriorly; middle of back, rump, upper tail-coverts, tail, wings, whole of breast, and upper abdomen, black or brownish black; scapulars, pearl-gray; secondaries, brown; tail, four median feathers, black, with central pair much elongated; rest of tail, white; under parts, white; bill black at base, terminal portion yellow, band of pink between; legs and feet, pale slate, webs, dusky; iris, light brown.

Measurements — Length, 21 to 23 inches, according to elongation of central tail feathers; wing, 8.90 inches; culmen, 1.10 inches; tarsus, 1.35 inches; middle tail feathers, 8 to 9.50 inches.

Adult female in winter — Head, neck, and lower parts, mostly white; forehead and crown, dusky; chin, throat, and face, tinged with gray; upper parts, dusky brown; tail, grayish brown, central pair of feathers not elongated.

Measurements — Length, 18 inches; wing, 8.25 inches; culmen, 1 inch; tarsus, 1.25 inches.

Adult male in summer — Lores, cheeks, and sides of forehead, mouse-gray; eyelids and a line passing over the eye to ear-coverts, white; rest of head, neck, and upper parts, sooty black; the feathers on upper part of back and the scapulars, variegated with brown; wing-coverts, brownish black; secondaries, gray on outer web, edged with white; four centre tail feathers, black, with middle pair greatly elongated; breast and upper abdomen, brownish black; rest of under parts, white; feet and iris as described above.

Adult female in summer — Head and neck grayish brown; space around the eye and on each side of neck, grayish white; upper parts, dark brown; scapulars, light brown; wings like male;

upper tail-coverts, blackish; tail, dark brown in centre, lighter at the edges; central feathers not elongated; upper part of breast and sides, light brown; rest of under parts, pure white; bill, dusky; legs and feet, bluish gray; webs, dusky; iris, hazel.

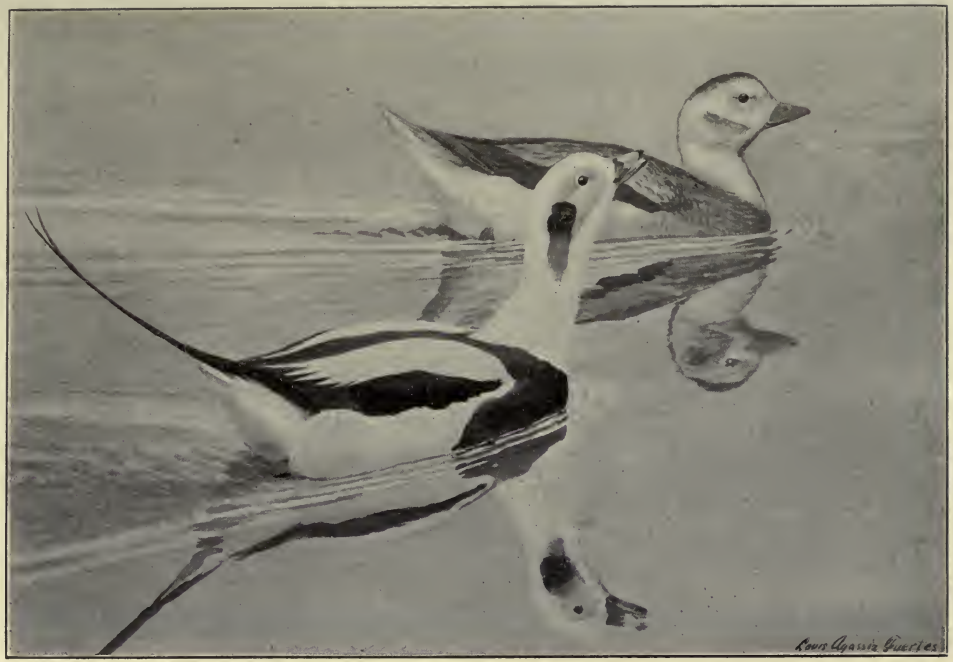
Young — Plumage similar to female. In the young male the characteristic plumage of adult is more or less noticeable.

Downy young — Head and upper parts, brown, grayish markings near the eye; a dusky stripe from the bill to back of head; under parts, white, with a dark brown band across the breast.

Eggs — Six to nine in number; pale grayish green in color, and measure 2 inches by 1.40.

Habitat — The northern hemisphere. In North America breeds from southern Labrador, Hudson Bay, the upper Mackenzie, the interior of Alaska, and possibly British Columbia, north to northern Greenland, Grinnell Land, the Arctic coasts and islands, the Bering Sea coast of Alaska, and the Aleutians and islands in Bering Sea, and accidentally in New York (?). Winters in southern Greenland, and from the Gulf of St. Lawrence, south regularly to North Carolina and the Great Lakes, and rarely to Florida, Louisiana, Texas, and Colorado; about the Bering Sea islands and the Aleutians, south regularly to Washington, and rarely to San Diego Bay, California.

The old-squaw brings up recollections of winter on the New England coast. Arriving in November, and often ushered in by a storm, these birds frequent the bays and sounds, becoming more and more abundant with increasing ice and freezing nights, gathering in vast rafts in our harbors if not too much molested. They are of a social disposition, and their musical note is always in evidence — the more the merrier. The *honk, honk a link, honk a link*, tells of snow at Christmas. All winter long they stay, with milder weather leaving their nooks inshore and



OLD-SQUAWS — MALE AND FEMALE

resorting to the open water, feeding at a considerable depth on small molluscs and shellfish.

The male old-squaw, in his winter plumage of black and white, with the white plumes of his wing and long tail feathers, is a very handsome bird. With spring this attire changes, and he assumes a dark dress, so that when it comes time for him to take leave, we scarce can recognize the same bird. While these birds are good examples of rugged New Englanders, we find them along the shallow bays of Long Island and New Jersey, even wintering in some numbers off the coasts of our Southern states. On the Pacific Coast they are found in Alaska during the summer, but do not occur in large numbers farther south. The bird is regularly met with on the Great Lakes, and is a straggler on the larger rivers. Arctic America is their breeding-ground, Greenland, Hudson Bay, the shores of the Arctic sea, and the Aleutian Islands. The shores and islands of fresh-water lakes, a short distance inland, are favorite sites. The nest is of grass, the duck lining it with down as incubation progresses, and remaining the sole guardian of her brood.

The writer saw, in the summer of 1886, a pair of old-squaws with their young ducks off Little Gull Island, in Long Island Sound. One of the old birds was doubtless a cripple. At the first approach of danger the brood would disappear,

diving in the open water. The flight is graceful and fast, but near the water, and they pass without hesitation over the line of boats anchored in the path. When startled by the gunner the flock bunches, and if this chance is waited for, several birds fall at a shot, the others often circling over the wounded. Few crippled ducks are quicker about getting under, and when once they appreciate their predicament, it is good-by, old-squaw; they dive at the flash, and you will save time by letting them go, and wishing them luck. These birds are easily decoyed, and, by imitating their note, are often turned from their course and called in. They drop among the stool with a sociable grunt. You wait for them to rise, but they may think differently, and just disappear, coming to the surface and taking wing out of range. As an edible bird the old-squaw is not a success, and the only excuse for shooting him is sport, pure and simple. The natives alongshore pick the bird, and their breast feathers have stuffed many a pillow down east.

This species is known by various names: south southerly, oldwife, old Indian, cockawee, coween, long-tailed duck, scolder. On mild days in spring and fall old-squaws sometimes "tower," collecting in large flocks, and flying so high in the air as to be hardly visible, then descending to the water with a rush, the whistling of their wings

being audible from a distance. This habit is described by Mr. George H. Mackay in the *Auk* for October, 1892.

HARLEQUIN DUCK

(*Histrionicus histrionicus*)

Adult male — Loral region, with a stripe on each side of crown, a round spot near the ears, a long, narrow stripe on each side of upper hind neck, a narrow collar around lower part of neck, a broad bar across sides of breast in front of wing, middle of scapulars, portion of tertials, a round spot on lesser wing-coverts, tips of some of greater wing-coverts, and a round spot on each side of breast above and below, pure white; under side of neck and bar on side of breast above and below the white, black; centre of forehead, crown, and nape, black, bordered on each side with chestnut; rest of head and neck, dark slate, glossed with violet; upper parts, leaden blue grading into blue-black on lower part of rump and upper tail-coverts; wing-coverts, bluish slate; speculum, bluish violet; primaries and tail feathers, dusky black; breast, plumbeous, becoming bluish gray on abdomen, grading into black of the under tail-coverts; sides and flanks, bright rufous; bill, slate; base, olive-gray; tip, paler; iris, hazel; legs and feet, slate; webs, dusky.

Measurements — Length, 17.50 inches; wing, 7.80 inches; culmen, 1 inch; tarsus, 1.40 inches.

Adult female — Head, neck, and jugulum, grayish brown; a white spot near the auricular region; the lores and sides of head, tinged with white; sides and flanks, grayish brown; bill and feet, slate; webs, dusky; iris, brown.

Young male — Bright markings of the adult male, indistinct; on the upper parts the white is not well defined and there is no blue-black; the speculum, dull gray, without gloss; lower parts, grayish white, each feather marked with a transverse spot of grayish brown; the sides and flanks, grayish brown, without rufous; the collar around the lower neck, imperfect.

Young female — Resembles the adult female, but the upper parts are darker and the lower parts more tinged with brown.

Downy young — Top of head and upper parts, blackish brown; face and neck, white; under parts and a spot on each wing and thigh, white.

Eggs — Seven to ten in number, a dark brownish gray in color, and measure 2.20 by 1.70 inches.

Habitat — Breeds from Newfoundland, Labrador, Fort Rae, and British Columbia, and south in the mountains to Colorado and California, north to Greenland, the Arctic Coast, and the Kowak and Yukon rivers, Alaska, and occurs all summer in flocks near the Pribilof and Aleutian islands. Breeds also in northeastern Asia and in Iceland. On the Atlantic Coast occurs south regularly in winter to Maine, and rarely to New Jersey; in the interior rarely to western New York, Minnesota, Wisconsin, Illinois, Missouri, and Colorado; and on the Pacific Coast from the Aleutians to Monterey, California. Frequently taken in Europe and in Asia, south to Japan.

Harlequin well named, this beautiful duck is seldom found within our country. The Alaskan Indian and Eskimo see him along their shores and inland lakes. There it breeds and lives, content with winter's cold if left with open water, occasionally in severe weather coming within the limit of the United States. In Alaska the harlequin breeds on the mountain streams of the interior and early resorts to the islands of the coast. Here about the Aleutian Islands and at Unalaska they gather in large flocks, feeding on various shellfish and crustacea. In June and through the summer they are found on the water near the ice and cliffs, floating gracefully on the surface, or flying low in lines, fitting ornaments of the wild coast.

Instances of this bird breeding in the United States are recorded. According to Mr. L. Belding, several pair of this duck breed regularly on the Stanislaus River, Calaveras County, California. The bird was seen with young just able to fly near Chief Mountain Lake, Montana, by Dr. Coues. Professor D. G. Elliot saw a brood of eight or nine, in July, 1879, near Wenatchee, Washington, on the upper Columbia, and he secured two of the birds. A very interesting instance of the breeding of a pair of harlequin in confinement, in the Melbourne Gardens, is published in the *Zoölogist* of 1850, by Mr. J. J. Briggs. "Although kept in confinement for several years, they did not breed until 1849. In these grounds, at a considerable distance from the pool where the birds had lived, was an ice-house, against which some thatched sheaves had been placed. Upon these, sheltered from wet and sun, at a height of three feet, the pair nested and laid eight eggs, which were hatched about the middle of June. When the female left the eggs she carefully covered them with down. After feeding she was escorted back to the nest by the male, who, however, took no share in sitting on the eggs. Several of the young ducks were reared."

Small, swift-running streams are favorite locations for the nest, which is placed on the bank, or sometimes in the hollow of a tree. In Iceland,

where this bird is found, nests have been taken from holes in the bank. The little brood frequent the rapids and pools, playing about and diving much after the manner of a dipper. In the winter the harlequin occurs in small numbers off the coast of Maine, rarely straggling to Massachusetts. It is taken occasionally in Puget Sound. The bird is a quick, strong diver, and readily escapes if wounded. The flesh is unfit for the table. Lord and lady, and painted duck, are other names applied to this species.

LABRADOR DUCK (PIED-DUCK)

(*Camptolaimus labradorius*)

Adult male — Head, neck, breast, scapulars, and wings, except primaries, white; stripe on crown and nape, ring around lower neck, back, rump, primaries, upper tail-coverts, tail and entire lower parts, black; the tail has a grayish tinge; cheeks, yellowish white; long scapulars, pearl-gray; bill, black, slate along base of culmen, and orange at base and along edges of maxilla and mandible; eye, reddish brown; feet and legs, slate.

Measurements — Length, 23 inches; wing, 8.70 inches; culmen, 1.75 inches; tarsus, 1.50 inches.

Adult female — General plumage, uniform brownish gray; tertials, silvery gray, edged with black; secondaries, white, edged with black.

Measurements — Length, 18 inches; wing, 8.40 inches; culmen, 1.60 inches; tarsus, 1.40 inches.

Young male — Similar to adult female, with chin and throat white, and in some specimens breast also; greater wing-coverts are also white.

Habitat — Formerly the northern Atlantic Coast and recorded from Hudson Bay; supposed to breed in Labrador, and wintering

from Nova Scotia south to Chesapeake Bay, and occurring in the interior as far as Montreal; now probably extinct. The Michigan record was a mistake.

While always a rare bird, previous to 1855 the Labrador duck was taken frequently along the Atlantic Coast as far south as Long Island and New Jersey. It was supposed to breed off the coast of Labrador and in the islands in the Gulf of St. Lawrence. In 1833 John Audubon was shown deserted nests of this bird on the top of low tangled fir-bushes, on a visit to Blace Sablon. That these nests belonged to the Labrador duck, however, we may be permitted to doubt. The nest and eggs are unknown, and probably no man except a northern savage has ever seen them. Nearly all the specimens have come from the Nova Scotian, New Brunswick, and New England coasts, although at times the birds were noticed in New York markets, probably from the vicinity of Long Island and New Jersey. These specimens were mostly females and young males, the adult male being seldom met with. After 1860 the occurrence of the bird became exceedingly rare, and the last one recorded was killed by Mr. Cheney in 1871, near Eastport, Maine. In 1843 this bird was rare on Long Island, where it was known as the skunk-duck, from the black and white appearance of the male. The historic pair killed by Daniel Webster, at Vineyard Haven,

and by him presented to Audubon, are now in the Smithsonian Institution. The most beautiful collection of these birds in existence is in the New York Museum, where one case contains five finely mounted specimens, two of which are adult males. They were collected by Professor D. G. Elliot.

The Labrador duck was a strong flyer and diver, apparently able in every way to protect itself against the depredations of enemies, yet it has passed into extinction and no satisfactory reasons can be given for its disappearance. The flesh was coarse and fishy. Probably the breeding area was limited, and natural causes effected its destruction.

STELLER'S DUCK

(*Eniconetta stelleri*)

Adult male — Greater part of head and upper neck, glossy white; lores and tuft of feathers on occiput, olive-green; chin and throat, black; lower part of neck, middle of back and rump, and upper tail-coverts, glossy black; long scapulars, blue-black on outer, and white on inner web; other scapulars bend down across the wing; wing-coverts, anterior scapulars, and sides of back, white; speculum, blue-black, with white bar; under parts, light chestnut, becoming darker on the abdomen; a round, black spot on each side of the breast in front of wing-coverts; anal region and under tail-coverts, black; tail, brownish black; bill, slate, yellowish at tip; iris, dark brown; legs and feet, brownish.

Measurements — Length, 18 inches; wing, 8 inches; tarsus, 1.35 inches; culmen, 1.45 inches.

Adult female — Head and neck, reddish brown, speckled with dusky; upper parts, dusky brown, feathers tipped with lighter; wings

dusky; tips of greater coverts and secondaries, white, forming two narrow bars across the wing; speculum, purplish brown; upper parts of breast, rusty, spotted with black; bill, slate; legs and feet, brownish; iris, brown.

Measurements — Length, 17.50 inches; wing, 8 inches; tarsus, 1.15 inches; culmen, 1.40 inches.

Young male — Similar to the female, but the speculum is a dull grayish brown without any gloss; the tertials slightly curved, with no white.

Eggs — Six to ten in number, pale grayish green, and measure 2.30 by 1.60 inches.

Habitat — Found in summer in North America, in Greenland, Cumberland, and from Point Barrow, Alaska, along the coast to the Alaskan peninsula, the Aleutian Islands, the Shumagins, and islands in Bering Sea. In winter, the islands in Bering Sea, the Aleutians south to the Kenai peninsula, and two taken in the Gulf of St. Lawrence. Probably breeds in most of its summer range, as it does abundantly in Siberia.

The chief claim this handsome bird has to a residence in North America is its presence on the Alaskan coast. It is common on the shore and islands of Bering Sea, and is occasionally numerous on the Aleutian Islands and near Unalaska. Closely related to the eiders, the Steller's duck is found in the Arctic regions associating with the king eider. Farther south it is sometimes seen among flocks of Pacific eiders. They frequent the islands offshore, feeding in the tide-rips and at the mouths of rivers on various crustacea and mollusks found in these waters. In May, as soon as the ice leaves the bays, the flocks separate into pairs. Later in the summer they are seen in large flocks, the young birds and

females outnumbering the males. In fall and winter they frequent the open water, more to the south, but do not range below Alaska. North of Nome, along the Alaskan coast, the natives use the skins for ornaments in their dress. The breeding-grounds are on the northern shores of Siberia, and the islands of Bering Sea. A nest was found near Unalaska by Mr. Dall, in May, 1872. It was on the ground, carefully concealed by slanting grass, and contained a single egg of a pale green color. Other ornithologists have doubted that this nest was correctly identified. The male, after incubation is established, loses his striking plumage, which he does not resume until the late fall. Like all the sea-ducks of its class, the Steller's duck is hardy and braves the severest storms and cold of the North, asking only the privilege of open water.

Steller's duck is said to breed by tens of thousands on the Arctic coast of Siberia, and to appear in large flocks off Bering Islands about November 1. All winter they are common at the latter locality, frequenting the most rocky parts of the coast, where the breakers are most violent. In April their numbers are enormously increased, and flocks may be seen covering many acres of the sea; but by the end of May all have disappeared.

SPECTACLED EIDER

(*Arctonetta fischeri*)

Adult male — Feathers projecting on the bill, yellowish white, grading anteriorly into sea-green on the forehead and lores; this color extends in a narrow line along the crown and in a rather broad stripe beneath the eye patch, broadening out on the thick occipital crest; the green is deepest on the lores, and on the stripe under the eye, and edge of crest; a large circle of satiny white surrounds the eye, covering nearly all the side of the face and crown, bordered above and on either side by a narrow line of black; chin, throat, neck, back, scapulars, and a large patch on each side of the rump, white; greater wing-coverts, primaries, and tail, dark brown; lower back and rump, upper tail-coverts, and breast, dark plumbeous, grading into smoky black on lower breast; bill, orange, palest on nail; iris, brown, surrounded by a bluish ring; legs and feet, olive-brown.

Measurements — Length, 21.50 inches; wing, 11 inches; tarsus, 1.90 inches; culmen, 1 inch.

Adult female — Top and back of head, yellowish buff, streaked with dusky; a broad stripe in front of eyes beginning at the corners of mouth and extending on to centre of head; space around eyes and cheeks, buff, streaked with dusky; upper parts, barred coarsely with brown and black, also breast and sides; remainder of under parts, grayish brown; bill, slate; legs and feet, yellowish brown.

Measurements — Length, 21 inches; wing, 10.50 inches; tarsus, 1.75 inches; culmen, 1 inch.

Eggs — Five to nine in number, grayish white, measure 2.55 by 1.75 inches.

Habitat — Breeds on the Alaskan coast, from the mouth of the Kuskokwin to Point Barrow, and is said to be a common breeding resident on the Near Islands. Winter range unknown, probably the Aleutian Islands.

With a limited range of some four hundred miles of Alaskan coast, an area exposed throughout its entire extent to the ravages of natives, the

spectacled eider is threatened with extinction, and is now rare in collections. Two specimens of this bird were secured for me by Mr. Dunham, in May, 1902, both taken in the vicinity of St. Lawrence Island, the only ones seen on a collecting trip of two months. As soon as the ice leaves the bays and mouths of the rivers, the spectacled eider frequents the open water, along with the vast number of sea-ducks, waiting the opportunity of working north to the breeding-grounds. It is seen usually singly or in pairs, rarely in flocks. They frequent the muddy, shallow water and the extensive marshes that line the Alaskan coast of Bering Sea, in their habits resembling the commoner members of the eider family. Marshes on the islands or remote portions of the coast are their breeding-ground. The nest is of dry grass, and the duck is devoted to her charge. During the breeding-season the male, after the custom of other eider, moults into a brown plumage. Later in the summer the birds congregate in small flocks offshore.

NORTHERN EIDER

(*Somateria mollissima borealis*)

Adult male — Top of head, black, with a white stripe in the centre of the occipital region; nape and posterior area, sea-green; cheeks, neck, chin, throat, back, smaller wing-coverts, and a large patch on each side of rump, pure white; greater wing-coverts and secondaries, black; primaries, brown; lower part of back and rump, upper and under tail-coverts, and entire under parts

below breast, deep black; breast, cream color; tail, pale brown; bill, legs, and feet, olive-green; a black V sometimes found on throat.

Measurements — Length, 22 inches; wing, 12 inches; bill, culmen, 1.90 inches; from tip to end of frontal angle, 2.75 inches; width of angle, .30 inch; tarsus, 1.80 inches.

Adult female — Head and neck, rufous brown, streaked with narrow black lines; rest of plumage, chestnut-brown, the upper parts and breast barred with black; the under parts, grayish, with dusky bars; wing, like the back, with two whitish bars; primaries and tail, blackish brown; bill, legs, and feet like those of the male, but darker.

Measurements — Similar to the male.

Downy young — Plain, gray-brown, lighter beneath; a distinct, light, superciliary stripe.

Eggs — Four to six in number, pale green in color, and measure 3 by 1.90 inches.

Habitat — Breeds from Labrador north to Cumberland and the coast of Greenland, and probably in Hudson Bay. Winters in southern Greenland and south rarely to Massachusetts.

The eider of the Atlantic Coast was for a long time supposed to be identical with the European bird, but two distinct species are now separated. A subspecies of the European, or common eider of northern Europe, ranges on the Atlantic Coast of North America from Greenland to the Gulf of St. Lawrence, and the American eider, whose range is from Labrador to New England. To the native of the North the eider is essential, providing him with food and raiment. The eggs and flesh are almost staple articles among the Eskimos, while the down is part of his commerce. In various parts of Iceland and Norway these birds

breed in protected colonies and become exceedingly tame, the duck allowing herself to be raised from the nest while the down is removed. Incubation begins in June, and lasts about a month. In the late summer and early fall they congregate in large flocks offshore, frequenting the rocky islands. Winter drives them only to open water. I was told by natives that in the winter of 1900 the outer water about the Magdalen Islands was frozen for a long distance from shore. Large flocks of these ducks congregated on the ice, where they were surrounded and killed with sticks.

AMERICAN EIDER

(*Somateria dresseri*)

Similar in plumage to the Greenland eider but differs in the bill. The frontal angles or naked portion running from the base of the bill on to each side of forehead in the American eider are broad, rounded, and much corrugated, while in *S. borealis molissima* they are narrow and smooth. The female possesses the same characteristics. Sometimes a black V similar to that on the Pacific eider occurs on the throat of the males.

Measurements are similar in the two species except the angle of bill, which in the present species is .45 of an inch in its greatest width.

Eggs — Four to eight in number, olive-green in color, and measure 3 by 1.80 inches.

Habitat — Breeds in Newfoundland, and from Maine north on the coast to Hudson Strait, and south in Hudson Bay to James Bay, also on the north shore of the Gulf of St. Lawrence. Winters in the Gulf of St. Lawrence, the St. Lawrence River, and south on the Atlantic Coast, regularly to Massachusetts, rarely to Virginia; and in the interior rarely to western New York, Illinois, Wisconsin, Michigan, and Colorado.

The American eider has a more southern range than the northern bird, nesting from the coasts of Labrador as far south as Maine, where it summers on the rocky islands off Grand Manan, unfortunately now in sadly diminished numbers. Farther north small islands off the coast, more rarely the mainland, afford sites for their breeding purposes. The nest is on the ground, and the scrub brush with which the shores are lined often gives it a shelter. In the fall flocks of these birds gather far out in the open water. The wild islands offshore give them a resting-place when they need one; storms and cold do not worry, and few conditions prevent them from a living. Mollusks and various shellfish are their food. In winter we see them off Massachusetts, rarely farther south. The long lines of heavy, cumbersome birds, marked by the striking black and white of the male, are unmistakable. They keep close to the water with powerful flight and pass on their way, giving little heed to outsiders; strong and difficult to bring down, the wounded bird readily escapes. Occasionally this species is found on the Great Lakes in cold winters.

The American eider is usually very common in winter in the shallow waters of Nantucket Sound, and Mr. George H. Mackay states that on March 18, 1890, he saw near Nantucket a flock containing about twelve thousand of this

species. Each morning at dawn the eiders appear in small flocks at their feeding-grounds to feast on mussels and other shellfish that abound in these waters, and in the evening fly out to sea to spend the night far from land. They are shot from stool, to which at times they will decoy well, or from points of land near which they are accustomed to pass in their morning and evening flights; this latter plan often proving very successful in certain conditions of the weather, and especially just before they start north in April. At this time a roll or so of seaweed placed on the shore, or a few dead eiders, will lure the passing flocks; at others, a single dead duck drifting into a flock will put all to flight. Sometimes they will swim in to the brant decoys at Monomoy; and then their great skill in diving is evident, a heavy charge fired at close range often failing to bag a bird. This bird is also known as the sea-duck, shoal-duck, wamp, and black and white coot.

PACIFIC EIDER

(*Somateria v-nigra*)

Adult male — Similar in plumage to both the common and American eider, except that on the throat there is a long black V mark beginning on the chin and extending to a line intersecting the occiput. The bill differs from that of the other eiders, being broader and deeper through the base with shorter and more acute frontal angles. The color of the bill is reddish orange at the base, grading into pale orange at the tip; iris, brown; legs and feet, dusky orange.

Measurements — Length, 22 inches; wing, 11.50 inches; culmen, 2.25 inches.

Adult female — Head, chin, throat, and neck, pale brown with dusky streaks, darkest on the top of head. Upper parts rufous with black bars, the broadest on back; lesser coverts, dusky with whitish tips; primaries and secondaries, dark brown; breast and sides, pale buff; under parts, grayish brown.

Measurements — Wing, 11.50 inches; culmen, 1.75 inches; tarsus, 1.75 inches.

Downy young — Resembles that of the common eider.

Eggs — Five to seven in number, light gray-green in color, and measure 3 inches by 2.

Habitat — In North America, breeds on the Aleutian Islands and the coast of Alaska, from Cook Inlet north to Point Barrow, and eastward along the Arctic Coast to Franklin Bay. Winters in Bering Sea, about the Aleutian Islands, and probably the southeastern coast of Alaska; recorded from Great Slave Lake, Hudson Bay, and Kansas. Breeds also on the Commander Islands and in northeastern Siberia.

According to Nelson, these birds arrive off the shores near the mouth of the Yukon, about the middle of May, choosing for their nesting-places the marshy islands in the adjacent ponds. The nest is a depression on the ground and is composed of grass and seaweed. The eggs are six in number, the duck carefully covering them with down. During the period of incubation the males gather in flocks near by and moult, taking on a dull plumage. The young are hatched in early July, and until they are able to fly, in September, remain on the smaller bodies of water. Later they gather in large flocks offshore, in stormy weather seeking the protection of the islands and

beaches, when they are frequently killed in large numbers by the natives, for they seem to hesitate to fly. Like the other members of its family, this species is a powerful diver and secures its food of mollusks and crustacea in deep water. The flight is in lines low down, the bird uttering a guttural note. The natives depend at times on this bird for food and use the skins for various ornaments.

KING EIDER

(*Somateria spectabilis*)

Adult male — Feathers surrounding the base of maxilla and a spot beneath and behind the eye, black; a large, black, V-shaped mark on the throat; entire top of head and upper part of nape, delicate pearl-blue; upper and frontal portion of the cheeks below the eye, sea-green; remainder of head, neck, and middle of back, smaller wing-coverts, and a patch on each side of rump, white; breast and jugulum, cream-buff; remainder of plumage, dull black; bill, flesh color; sides of upper mandible and soft, frontal lores, bright orange; iris, yellow; feet, dusky orange; webs, dusky.

Measurements — Length, 23 inches; wing, 11 inches; culmen, 1.10 inches; tarsus, 1.75 inches.

Adult female — Head, chin, and throat, dark buff, streaked with brown; darkest on top of head; breast and sides, light buff, with irregular markings; greater coverts and secondaries, black, with whitish tips forming two narrow bars across the wing; rump and upper tail-coverts, dark buff, with black bars; tail, black; under parts, dark brown; bill, greenish yellow; legs and feet, ochre, with dusky webs; iris, brown.

Measurements — Length, 23 inches; wing, 10.75 inches; culmen, 1.25 inches; tarsus, 1.75 inches.

Downy young — Upper parts, dark brown, more rufous than in the other eiders; cheeks, throat, and under parts, buff. Its markings are more distinct than in the young of other eiders.

Eggs — Six to eight in number, olive-gray in color, and measure 2.77 by 1.80 inches.

Habitat — The northern part of the northern hemisphere. In North America, breeds from Labrador, rarely Quebec, along the coast north to northern Greenland and the Arctic coasts at Franklin Bay and Point Barrow. Winters in southern Greenland and in the Gulf of St. Lawrence, south on the Atlantic Coast, regularly to New York, and rarely to Georgia; in the interior rarely to western New York, Pennsylvania, Ohio, Wisconsin, Minnesota, Illinois, Ontario, and Alberta; on the Aleutian Islands, and recorded once from California. Occurs also in the interior of Alaska, and in Hudson Bay.

Of all the eiders, the most beautiful. The plumage of the male king eider, with his lavender hood and delicate sea-green face, is unequalled, while the black V on his throat is the mark of an aristocrat. This variety keeps farther north than the commoner members of the family, and only in severe winters straggles within our reach. The most northern shores of both coasts are their resorts. In Alaska, St. Michael seems to be the southern limit. On the Atlantic the Gulf of St. Lawrence. In summer, Greenland and the shores of the Arctic Sea are the haunts. Marshes adjacent to the shore are the sites selected to breed in. The nest is a mere depression on the ground, composed of grass and down. An adult male of this species in the writer's collection, killed in August off the north coast of Hudson Bay, has the brown feathers still in the head and breast, and is evidently just

coming out of the summer plumage. When the young fly they congregate in flocks, often far offshore. These birds are excellent divers and secure their food in deep water. In winter small numbers of king eiders straggle south as far as the New England coast. I have three specimens of this duck killed near New Haven, Connecticut, and know of several others taken in the same location. In January, 1901, a few of these birds were seen in Branford harbor, Connecticut. They remained by themselves, paying little heed to the scoters and other ducks. Eventually two were shot. The king eider occasionally visits the Great Lakes. Most of the specimens taken in these localities have been young birds of the first year.

AMERICAN SCOTER

(*Oidemia americana*)

Adult male — Bill, black, with a bright orange base; entire plumage, jet-black with a gloss on the head and neck; iris, brown; legs and feet, brownish black.

Measurements — Length, 18 inches; wing, 8.75 inches; culmen, 1.75 inches; tarsus, 1.80 inches.

Adult female — Front, crown, and back of neck, dark brown; rest of head and neck, lighter; upper parts, sooty brown, with lighter tips to feathers; under parts of a grayish cast; bill, black, normal in shape; legs and feet, olive-brown; webs, black.

Measurements — Length, 18 inches; wing, 8.50 inches; culmen, 1.70 inches; tarsus, 1.60 inches.

Young males, of the first year, resemble the female; later they are distinguished by occasional black feathers or patches of black in the otherwise brown plumage.

Downy young — Upper parts and breast, dark brown; lower parts, lighter brown; throat, white.

Eggs — Six to ten in number; ivory-white, with pinkish tinge; and measure 2.60 by 1.60 inches.

Habitat — Occurs in summer near Newfoundland and in the Gulf of St. Lawrence, and breeds probably in Labrador, and from Hudson Bay north to Franklin Bay, and on the Bering Sea coast of Alaska north to Kotzebue Sound, on the Aleutians, and islands of Bering Sea. Winters about Newfoundland and from Maine south rarely to Florida; in the interior rarely to western New York, Pennsylvania, Ohio, Michigan, Wisconsin, Minnesota, Illinois, Iowa, Nebraska, Missouri, Colorado, Wyoming, and Louisiana, occurring also in Manitoba; on the Aleutians, and islands in the Bering Sea, and south rarely to Santa Catalina Islands, California.

The American scoter is found throughout the same ranges as the white-winged scoter and surf duck, but nowhere in the same abundance. In full plumage, the male of this duck is readily distinguished by the bright orange prominence at the base of the bill. The coloring of the young birds of all three varieties is more or less similar; distinction, however, can readily be made by the differences in their bills. The immature birds of this species are common on Long Island Sound in early October, but seem to leave early. They are known as little gray coots, and many are killed every fall. The adult male in this locality is decidedly rare. On the south shore of Long Island they are more abundant and go by the name of butterbill or broadbill coot. They are considered good eating, although this reputation

would probably tempt few besides the natives. The birds are seen in small flocks, flying close to the water, their characteristic whistle marking the flight. Anything in the shape of decoys attracts scoters, if only dark in color, and in certain locations strings of bladders are employed for this purpose. This duck is a good diver and when wounded cares well for itself, easily escaping.

Throughout the interior of the United States the American scoter is an occasional straggler, but is found regularly on the Great Lakes. The breeding-grounds are about Hudson Bay, and great numbers breed off the Alaskan coast. Here they frequent the small bodies of water a short distance inland. The nest is concealed by some overhanging shrub near the water's edge, and the eggs are carefully covered with down. At this time the males keep offshore in flocks, moulting and preparing for the return trip south, while the female brings up the young brood.

The scoters are perhaps the least interesting of our sea-ducks; yet the time will come, and in places is now at hand, when the duck-hunter will put up with despised "coots" or go without.

THE VELVET SCOTER

(Oidemia fusca)

Adult male — Bill marked by a basal prominence of black; edges of upper mandible with a streak on each side of nail, black; the sides orange; nail and part of the ridge, a reddish flesh color;

basal half of lower mandible, black, the remainder, lake-red; general plumage, jet-black; eyelids and spots under the eyes, white; speculum, white; iris, white; legs and feet, carmine, with black webs.

Measurements — Length, 22 inches; wing, 11 inches; culmen, 1.60 inches; tarsus, 1.90 inches.

Adult female — General plumage, sooty brown, darkest above; speculum, white, no white spot on head; bill, dusky; feet and legs, brownish orange; webs, black.

Young male — Resembles the female after the first year; however, has traces of the white spot under the eye, and the bill begins to assume the characteristics of the adult male.

Eggs — Eight to ten in number; white, measuring 2.90 by 1.90 inches.

Habitat — Northern portions of eastern hemisphere; breeding from Iceland to Bering Straits, accidental in Greenland.

This bird has all of the habits and characteristics of the white-winged scoter, closely resembling it in plumage, but is readily distinguished by the bill.

The velvet scoter usually spends the winter in the Gulfs of Bothnia and Finland and in the Baltic; but when very cold weather turns their winter quarters to a mass of ice, they appear in myriads near Heligoland. There they gather with the black scoters and other sea-ducks on the lee of the ice-fields. Large and clumsy, like our scoters, they find it difficult to rise from the water except against the wind. They are willing to change their shellfish diet for something better when opportunity offers, Gätke tells us. A ship laden with small gray beans stranded on the

coast of Heligoland one stormy winter's night and went to pieces, its cargo being scattered on the bottom in about ten fathoms of water. Thousands of scoters fed on these beans until their flesh had entirely lost its fishy flavor, which renders it, as a rule, unacceptable to a civilized palate. These ducks are caught at Heligoland in nets set horizontally in shallow water so that they become bare at low tide. Stones are tied at the four corners, which keep the net a little below the surface as the rising tide elevates the corks. Scoters driving for their food through this net become entangled, drown, and are collected at the next low water.

While the females are incubating the males gather in flocks, like our scoters, and frequent the waters of the bays. The nest is on the ground.

WHITE-WINGED SCOTER

(*Oidemia deglandi*)

Adult male — A small spot underneath and behind the eye and the speculum of wing, white ; entire remainder of plumage, black ; flanks occasionally tinged with brown ; base of maxilla with elevated culmen, black ; sides, deep red, grading into orange on culmen ; nail, vermilion ; between nail and nostril, white ; iris, white ; legs and feet, scarlet, with joints and webs, black.

Measurements — Length, 20 inches ; wing, 11 inches ; culmen, 1.60 inches ; tarsus, 2 inches.

Adult female — Head, neck, and upper parts, sooty brown ; a spot behind the ear and speculum of wings, white ; under parts, grayish brown ; iris, dark ; legs and feet, brownish red ; webs, dusky.

Measurements — Length, 20 inches; wing, 10.50 inches; culmen, 1.60 inches; tarsus, 1.70 inches.

Young male — Similar to female.

Downy young — Upper parts, flanks, and ring on neck, dusky; lower parts, white.

Eggs — Six to seventeen in number, of a pale cream color, and measure 2.70 by 1.90 inches.

Habitat — Breeds from Labrador, probably Newfoundland and Quebec, North Dakota, Assiniboia, Alberta, and British Columbia, north to Fort Anderson, Point Barrow, Kotzebue Sound, and St. Michael, Alaska. Winters from Nova Scotia and Quebec, south rarely to Florida; in the interior rather rarely in migrations or winter, to western New York, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Colorado, Wyoming, and Louisiana; winters also on Bering Island and the Pacific Coast from British Columbia to San Quentin Bay, Lower California. Occurs also in summer in northeastern Siberia, wintering in Japan and China. Birds of this species, probably barren, occur in America in summer as far south as Rhode Island, and Monterey, California.

The most abundant and well known of all our sea-ducks, frequenting both coasts and also common on the Great Lakes, especially Lake Michigan. The first small flocks of white-winged scoters appear off New England in early September, and by the first week in October they are present in large numbers. Long Island Sound is a favorite resort, and in the fall we see countless numbers of them congregated in the open water offshore, diving a considerable depth for the small coot clams and shellfish which constitute their food, preferring the deeper water of the sound to the shallow bays. The

first aggregation is composed largely of young birds. On their arrival, tame, readily coming to decoys, hundreds are killed. The most popular method of shooting coots, for this is their Yankee name, is from a line of boats. The mouth of a harbor or some projecting point is the place selected, and with the first streak of light comes the shooting. A bunch of birds low down over the water appear in sight, looking black and large; now you hear their soft whistling close to the boats, they rise a little but still keep on, and the first shot is straight overhead. The rear birds swerve just enough to give your next-door neighbor a chance; more lucky than you, his first bird falls with a heavy splash, but dives out of harm's way and it is almost useless to chase him. Soon they come thick and fast, your gun grows hot, and for a time the booming of guns is echoed and reëchoed along the shores of the sound. Occasionally a bird loses all idea of sensible direction and passes over the entire line, calling forth both barrels from every boat, and then whistles by safe over the last one: hard hit likely, but well able to continue. They are strong and difficult to kill, seldom giving up unless mortally hurt, and then often diving, not to reappear. The only excuse for killing these birds is that somebody, who knows less about coots than you do, will be willing to eat them; but this individual is never

found but once, for they are too fishy for most mankind.

All winter long the white-winged scoter stays in the open water of Long Island Sound, although most abundant in fall and spring. Many pass farther south, where they frequent the ocean along the coast, keeping out beyond the surf, in heavy weather seeking the shelter of the bays.

These birds are heavy and must rise from the water against the wind. This fact enables them to be sailed on; as the craft approaches, the flock becomes uneasy and the ducks raise their necks as if taking a last long breath. Now they rise in a cumbersome way toward the boat and sheer off within easy range. Shooting from sailing vessels and launches is, however, generally prohibited. In April vast flocks congregate, preparatory to departure, and by May a few only remain. The breeding-ground is in Labrador and the regions about Hudson Bay, rarely in the northern United States, where it has been found in North Dakota. The nest is near water, always on the ground among the rushes and reeds that line the slough, by which it is well concealed. On the coast, foliage or brush serve this same purpose. The egg is larger than that of any other duck save the eider.

Many of the white-winged scoters that winter in Nantucket Sound, Massachusetts, are said to

migrate in May westward as far as Noank, Connecticut. From there they pass in evening, high in air, in a northwest course. Possibly these are the birds that breed in the interior from North Dakota northward. This species has many names among our gunners, the best known being velvet duck, velvet scoter, white-winged surf duck, black surf duck, and coot.

SURF SCOTER

(*Oidemia perspicillata*)

Adult male — Large white patch on the back of the neck, and a triangular white spot between the eyes on the forehead; entire remainder of plumage, black; bill, striking and characteristic; upper mandible at base, including nostrils, dull crimson changing to scarlet over the front; nail, yellow; on each side of the base of bill a large rounded spot of black, separated from the black feathering above by a streak of orange, and posteriorly by a narrow line of crimson; beneath these black patches and in front, continuously white; the remainder of the sides of bill, orange; the lower mandible similar but terminating at the base irregularly in white; feet, crimson or orange-vermilion, with joints and webs black; iris, white.

Measurements — Length, 21 inches; wing, 9.25 inches; culmen, 1.50 inches; tarsus, 1.70 inches.

Adult female — An indistinct white patch on lores and behind the ears; head, neck, and upper parts, dusky; under parts, paler, lightest on abdomen; bill, black, with greenish or brownish tinge; iris, brown; feet and legs, brown, with black webs.

Measurements — Length, 19 inches; wing, 9 inches; culmen, 1.40 inches; tarsus, 1.40 inches.

Young male — Resembles the female in its general plumage, but the bill is somewhat larger and more colored, and the white on the forehead and neck posteriorly more marked.

Eggs — Five to eight in number, ivory-white, with a pink tinge, and measure 2.45 by 1.60 inches.

Habitat — Breeds from Labrador and probably Hudson Bay, Great Slave Lake, and British Columbia, north to the Arctic Coast at Franklin Bay and Kotzebue Sound, the Bering Sea coast of Alaska and the Aleutian Islands; occurs also in Greenland in summer and south on the Atlantic Coast to New York, and on the Pacific to Monterey, California. Winters on the Atlantic Coast from Maine to North Carolina and rarely to Florida and Jamaica; on the Aleutian Islands, and on the Pacific Coast from British Columbia at least, south to San Quentin Bay, Lower California. Occurs not commonly in the interior, in Manitoba and Ontario, and south to western New York, Pennsylvania, Indiana, Illinois, Michigan, Minnesota, Wisconsin, Iowa, Missouri, Colorado, Wyoming, and Louisiana. Frequently taken in Europe, and occurs in Bermuda.

A relative and intimate companion of the white-winged scoter, the surf duck, is seen under the same circumstances on our coasts, but is more common in the interior, turning up frequently in unexpected places. We see the first flocks of these birds along the shores of the northern United States in early fall, and by October in abundance. They congregate on the same feeding-grounds with the other scoters, but usually remain by themselves. The surf duck is readily distinguished from the white-winged scoter by the absence of white on the wings and its more peculiarly shaped bill. On account of the white patch on the head of the male, this bird often goes by the name of skunk-head coot in New England and on Long Island.

The surf duck is killed with decoys and over lines of boats anchored at short intervals apart.

They fly low down, and as the flocks come within range, often close together, affording the opportunity of killing several at a shot. The flight is marked by a shrill whistling, and when the birds are in large numbers this sound is heard a long distance off. The flesh is hardly fit for the table, but natives alongshore skin the young birds and eat them. Under these circumstances much of the fishy flavor is said to be lost. In localities where scoters abound the feathers are regularly saved and readily sold.

Nelson describes a vast flock of surf ducks near St. Michael extending out to sea for miles, and we find them on the Atlantic Coast in considerable numbers just before their flight north in late April. The regions about Hudson Bay north to the Arctic Sea, Sitka, St. Michael, and various parts of the Alaskan coast are their breeding-grounds. The nest is on the ground, well made of grass and concealed under brush or scrub, sometimes at a considerable distance from water. At this time when disturbed the duck often utters a guttural note. At other times the birds are silent. During the period of incubation the males of the different varieties of scoters moult and for a time are unable to fly, in this condition, like many another bird, falling victims to the natives. While these species are perhaps the least interesting of our wild fowl, there is a certain satisfaction in

feeling that some birds stand a chance of surviving man's wantonness, even if they be scoters.

RUDDY DUCK

(*Erismatura jamaicensis*)

Adult male — In full plumage, upper part of head, including eye and back of neck, glossy black; sides of head and chin, white; throat and rest of neck, back, upper tail-coverts, scapulars, and flanks, bright reddish chestnut; wing-coverts, lower back, and rump, grayish brown; primaries, dull brown, speckled near outer edge with gray; tail, brownish black; under parts below the upper part of breast, silvery white, the hidden portion of the feathers being gray; the breast is tinged with rust color; under tail-coverts, white; bill, bright blue; eyelids, slate; iris, brown; legs and feet, slate; webs, dusky.

Measurements — Length, 16 inches; wing, 6 inches; culmen, 1.60 inches; tarsus, 1.20 inches.

Adult female — Upper half of head, including eyes, dark brown; cheeks, lighter brown; a white stripe from below the eye goes to the nape; chin, white; throat and neck, brownish gray; tips of feathers on lower neck in front, white; upper parts, dusky brown, mottled and speckled with grayish buff; lower parts, silvery white, as in the male; a yellowish wash on upper part of breast; sides and flanks barred with brown; wings, scapulars, and tail, dark brown, in some instances broadly margined with gray; under tail-coverts, white; bill, slate; legs and feet, slate; webs, dark.

Measurements — Length, 15.50 inches; wing, 5.50 inches; culmen, 1.50 inches; tarsus, 1.12 inches.

Young bird in fall plumage — Top of head, brown; chin, throat, sides of head, grayish white; back, scapulars, and rump, brown; under parts, silvery gray, frequently with tinges of rust.

Downy young — Upper parts and head, smoky brown; a brownish white stripe beneath the eye posteriorly; breast, sooty brown; under parts, grayish white.

Eggs — Twelve to eighteen in number, dull white in color, and measure 2.45 by 1.80 inches.

Habitat — Breeds in the West Indies, and from Guatemala, Texas, and Lower California, north locally to Hudson Bay, Great Slave Lake, and British Columbia; very rare in the United States in the breeding season east of the Mississippi, except in northern Illinois, Wisconsin, and Minnesota, but recorded, and in several instances eggs found, in Michigan, Ohio, Maryland, Rhode Island, Massachusetts, Vermont and Maine. Winters from New Jersey, Illinois, Missouri (?), Nevada, and British Columbia, south to West Indies, Columbia, and Lower California. Occurs in migration on the Atlantic Coast north to Newfoundland, and in Bermuda.

The reputation of the ruddy duck is recent, and dates back to the first scarcity of red-head and canvas-back along our eastern coast. Then a price was put upon its head, and this was followed by a persecution so relentless that shortly one of the commonest, and in many respects most insignificant, of our ducks will no longer be known in the old haunts. If it could only acquire the instinct of changing a diet composed of the most delicate grasses and vegetable matter on the duck bill of fare to sea food, it would live to old age unmolested and happy. This bird has nothing to commend it to sportsmen, no use for decoys, keeps off by itself, and, if occasion requires, disappears with the skill of a hell-diver. How unfortunate that a poor duck with such chances for peaceful existence should be fated!

The ruddy duck is exclusively an American bird, occurring throughout the United States and British provinces to Hudson Bay, breeding in

most of its range. The spring plumage of the male is striking, but in his dress of red he is seldom seen. This bird nests on the prairie sloughs in company with the red-head and canvas-back, sometimes depositing its eggs in the nests of the former, from which they can readily be distinguished by their large size. The nest is built of rushes, often detached and floating. The young are hatched in July, and before September are fledged. We often see the brood remaining on the ponds when all the other ducks have taken flight, calmly waiting for the approach of danger, then sinking out of sight like a grebe, rising to the surface with just its bill protruding. The ruddy ducks are well distributed through the United States, in October occurring inland and on the coasts, but on the Atlantic they are not very abundant north of Virginia. Off North Carolina, and farther south, they are common, and seen in all the brackish bays. Keeping by themselves, they take to wing only when forced, and then fly a short distance. After the morning shooting is over the market gunner turns his attention to the boobies, for this is the name they go by, and well deserve. A number of boats quietly approach the ducks, gradually rounding them into some bay and lining out across its entrance; then the birds are started. Nothing will induce a ruddy duck to fly over land; it prefers open water and

destruction. They come over the boats in ones and twos and flocks, low down, an easy mark. For a time the fusillade is furious, and many are killed. The birds that escape proceed to fall into the same trap over again, as soon as opportunity offers. Other names for this bird are booby, broadbill dipper, bumble-bee coot, salt-water teal, spine-tail, bull-neck, steel-head.

MASKED DUCK

(*Nomonyx dominicus*)

Adult male — Head, except nape and chin, black; nape, throat, neck, back, scapulars, and upper tail-coverts, dark cinnamon; centre of feathers, black; lower back and rump, dark brown spotted with black; upper part of breast, dark cinnamon; sides darker with black centres to the feathers; wings, blackish brown with long, narrow, white speculum; under tail-coverts, cinnamon blotched with black; tail, dark brown, shafts of feathers black; bill, slate; median line on maxilla, nail and skin at base of chin, black; mandible, reddish white; tip, black.

Measurements — Length, 15 inches; wing, 5.75 inches; culmen, 1.30 inches; tarsus, 1 inch.

Adult female — Top of head, stripe from base of bill through eye to occiput and one from nape to occiput, black; rest of head, buff, becoming whitish on throat; neck, buff mottled with brown; upper parts, black edged with buff; wings, dark brown; feathers, tipped with yellowish white; speculum, white; tail, dark brown, under parts ochraceous with blackish spots on breast, flanks, and anal region; bill, brown; nail, black.

Measurements — Length, 13 inches; wing, 5 inches; culmen, 1.30 inches; tarsus, 1 inch.

Young male — Sides of head mottled with buff and under parts whitish, otherwise resembles adult male. Still younger specimens resemble female.

Habitat — Breeds in the West Indies and tropical America, ranging

north on the Gulf Coast to the Rio Grande in Texas. Recorded also in North America, from Cedar Lake, Saskatchewan, Wisconsin, Massachusetts, and Vermont; the last possibly an escaped caged bird, and the Cedar Lake, Saskatchewan, bird was wrongly identified. Occurs in South America, south to Argentina and Chili.

A tropical relative of the ruddy duck, which it resembles in habits. Found throughout northern South America and in the tropical parts of Mexico and Central America. There are three instances of its occurrence in the United States: one, on the Vermont shore of Lake Champlain, the bird being an adult male; the second specimen was taken on Rock River, Wisconsin, November, 1870, by Mr. L. Kumlein; the third at Malden, Massachusetts, in 1889.

This bird frequents the rivers and lagoons of its habitat, and is seen in pairs and small flocks. Like the ruddy duck, it is an expert diver, often swimming with the head and a small portion of the back exposed.

The masked duck, more than most species, keeps to the water, and when on dry land presents an awkward appearance, because of the feet, which are so far back as to disturb equilibrium. The flight is rapid, close to the water, and not well sustained. In Trinidad and the West Indies this variety is common, and while to a certain extent migratory, occurs throughout the year. The flesh is excellent.

CHAPTER IV

DUCK-SHOOTING (*CONTINUED*)

THE MERGANSERS

(*Merginæ*)

THE mergansers are a small group of eight or ten species, living chiefly in the northern hemisphere, but occurring also in most of the world. Their food is almost entirely fish, which they follow and catch under the water. As a consequence they have a long and cylindrical bill with pointed "teeth" along the sides and a sharp hook on the end. Their feet are webbed, but they differ from the river-ducks in having a small membranous flap on the hind toe. They have short legs, long necks, a crested head, and pointed wings, and are swift fliers and capital swimmers and divers. In consequence of their fish diet, their flesh is strong and poor for food, although they are eaten in some localities. The males are handsome birds of brightly colored plumage,—our own hooded merganser being, on the whole, the most beautiful of the group. They frequent the lakes and rivers, and the bays of the coasts, seldom occurring in the centre of large bodies of

water, and are very rarely found in large flocks. Many of them breed in holes in trees, others laying on the ground, under bushes, and close to the shore. Occasionally they breed in colonies. Like the ducks many of the male mergansers wear for a few weeks in summer a plumage resembling that of the female.

An interesting genus of this family inhabits the swift mountain torrents of the highest Andes from Columbia to Chili, and can swim and dive with great rapidity against the fast-rushing water. Their bills are more like that of a duck than those of the other mergansers, and they have a large and sharp spur on the wing. On account of their habits these birds are known as the torrent ducks.

AMERICAN MERGANSER

(*Merganser americanus*)

Adult male — Head and upper part of neck, dark, glossy green; feathers on nape elongated; back and inner scapulars, jet-black; rump, upper tail-coverts, and tail, ashy gray; sides of crissum and femoral region, whitish, narrowly barred with slate color; neck, white; breast and under parts, fine salmon color, fading to white in dried skins; primaries, black; secondaries, white, edged with black; lesser wing-coverts, black proximally, white distally; inner greater coverts, black, outer, white; base of greater coverts, black, forming a bar halfway across the wing; bill, vermilion, with culmen and nail, black; feet, vermilion; iris, red, or reddish brown.

Measurements — Length, 27 inches; wing, 11 to 11.25 inches; culmen, 2 inches; tarsus, 1.90 inches.

Adult female — Head, neck, and occipital crest, reddish brown; chin and throat, white; upper parts, gray, edged with paler and with

dark shaft streaks; primaries, black; speculum, white; flanks, ash; lower parts, white, with a tinge of buff, fading in dried skins; tail, gray; bill, reddish brown; culmen, blackish; feet, reddish orange; webs, dusky; iris, brown.

Measurements — Length, 22 inches; wing, 9.60 inches; tarsus, 1.80 inches; culmen, 1.90 inches.

Young male — With general characteristics of female, but larger in measurement.

Downy young — Upper parts, brown, marked with four white spots; upper half of head and neck, rusty; rest of head, neck, and under parts, white.

Eggs — Seven to ten in number, ivory-white, with a tinge of buff, and measure 2.63 by 1.75 inches.

Habitat — Breeds from Newfoundland, Sable Island (?), Maine, Vermont, New York, formerly Ohio, Michigan, Minnesota, Iowa, Nebraska, and Washington, and south in the mountains to Pennsylvania, New Mexico, Arizona, and California, north to Labrador, Great Slave Lake, probably Fort Anderson, Fort Yukon, and the Queen Charlotte Islands. Winters from New Brunswick, Vermont rarely, Ontario, Wisconsin, Kansas, Colorado, Idaho, British Columbia, and the Aleutian and Pribilof islands, south to Florida, Louisiana, Texas, northern Mexico, and California. Occurs in Bermuda.

Fond of the sport and a clever fisherman, but no respecter of a six-inch law, the American merganser knows every trout stream and lake from northern New England to as far north as trout streams flow. In July we see the female with her little brood on the secluded lakes and rivers. They were bred in the hole of some tree not far from water, and since the time the old duck carried them to the ground in her bill they have been learning merganser manners, and now are well skilled in diving, hiding, and scooting along

the water. The mother is a devoted parent and is often seen with a little one on her back. When danger threatens they scatter and disappear, the old bird keeping close until she can call them to a place of safety. In late August and September they are full-fledged and congregate with other families, forming a respectable flock. When startled, they run along the surface of the water, flapping their wings with much noise and commotion, on account of which habit the bird often goes by the name of steamboat. In October and November the American merganser appears along our coast and inland, frequenting the open rivers and lakes, remaining until the last ice hole is closed, under these circumstances keeping well fed and fat. I noticed one winter that among a number of ducks killed in a freeze-up these birds were the only ones in good condition. Their crops were gorged with little eels. We often see them in bays near the mouths of rivers, keeping pretty much their own company and feeding on the schools of small fish abounding in these places, the bird when wounded often ejecting what it has swallowed. The flight is strong and they are hard to kill, carrying away a heavy charge of shot; if wing broken, diving quickly and swimming a long distance under water. When freshly killed the bright salmon color of the breast, in the male bird, is a striking feature

of his plumage. In the spring the American merganser is fond of the smaller rivers and streams, swimming through the rapids without hesitation, diving for his food in the pools. We get our last glimpse of him in April. Other names for this species are American sheldrake, pond sheldrake, goosander, saw-bill, breakhorn, and fisherman.

RED-BREASTED MERGANSER

(*Merganser serrator*)

Adult male — Head and occipital crest of lengthened feathers, dark glossy green with purple reflections; neck immediately below, white in the form of a collar with a black streak posteriorly; upper part of breast, buff streaked with black; under parts, white; back and inner scapulars, glossy black; lower back and rump, gray with black and white mottling; primaries, dark brown; wing, mostly white crossed by two black bars; on the sides of the breast, in front of shoulder, is a patch of white feathers, bordered with black; flanks, finely barred with lines of gray and black; tail, dark gray; bill, carmine with dusky culmen; nail, yellowish; legs and feet, red; iris, reddish orange or carmine. The distance from nostril to nearest feather on head less than the height of bill at base in both sexes. This is a point of certain distinction between this and the preceding species.

Measurements — Length, 22.50 inches; wing, 8.70 inches; tail, 4 inches; tarsus, 1.80 inches; culmen, 2.40 inches.

Adult female — Head, neck, and crest, cinnamon-brown; throat and lower parts, white; sides, gray; upper parts, dark gray edged with pale gray, feathers with darker shafts; white patch on the wing divided by a black bar; bill, legs, and feet, reddish brown; iris, brown.

Measurements — Length, 20 inches; wing, 8.50 inches; tarsus, 1.50 inches; culmen, 2.20 inches.

Young male — Similar to female; chin and throat, pale reddish; lower neck and upper part of breast, brownish; white space on wing marked by a black bar.

Downy young — Upper parts, top of head and neck, brown; sides of head and neck, rusty; lower parts, yellowish white, and a white patch on each side of back and rump.

Eggs — Eight to twelve in number, creamy buff, and measure 2.55 by 1.80 inches.

Habitat — Northern portion of northern hemisphere. Breeds in North America from Sable Island, Maine, Ontario, Michigan, Minnesota, Illinois, Manitoba, Alberta, Utah, probably Idaho, and British Columbia, north to the Aleutians, the western and Arctic Coast of Alaska, Fort Anderson, Cumberland, and Greenland south of 73°, chiefly near the coast or on large lakes. Winters in south Greenland and the Commander Islands, and in the United States chiefly along the coast, from Maine, Ohio, Illinois, Wisconsin, Minnesota, Colorado, Nevada, and Washington, south to Lower California, Louisiana, and Florida. Occurs also in Bermuda and Hawaii.

The range of this bird is wide; it is found along both coasts from the Arctic regions to the southern limits of the United States, and rather prefers shore resorts to those inland. The red-breasted merganser breeds from our northern boundary to Alaska and Hudson Bay. It is common as far north as the Aleutian Islands, and the natives here consider the rank and fishy flavor of its flesh a delicacy. The nest is placed in the marshes near the coast on the islands or mainland, carefully hidden on the ground among the rushes and reeds. The eggs are well covered up with down. We see the little ducklings in July, and if surprised they quickly hide, perhaps betraying their

presence by a lonely peep in answer to the distressed cry of the old bird as she circles around near by. They are hardy and soon able to shift for themselves, running and flapping over the water exactly as the goosander or American merganser. They fly in September and follow the coast in their migration, frequenting the shallow bays and lagoons alongshore, often following up the larger rivers. Mergansers do not care especially for the companionship of other ducks, and we see them in flocks alone, perhaps feeding on some school of fish which they ravenously pursue and devour. They fly in a line and have a peculiar habit of depressing the neck and head, when their attention is attracted by anything in the line of flight. The ideas of the red-breasted merganser on the subject of a winter resort vary. Some stay through the coldest weather along the New England coast, others push on to Florida; many loiter between. The male of this species is very showy; his green hairy crest and handsome body markings rank him well as a stylish bird. Not persecuted for the market and careful to mind their own affairs, this species might well set examples to the more popular members of our wild-fowl family. This bird is also known as the sheldrake, salt-water sheldrake, fishing-duck, and hairy crown.

HOODED MERGANSER

(*Lophodytes cucullatus*)

Adult male — Head and neck, back, and scapulars, black; crest, black anteriorly; posteriorly white, with narrow black border; wing-coverts, dark gray, grading into lighter posteriorly; tertials, black, with central band of white; wing, rump, and tail, dark brown; in front of the wing, on the sides, are two black and two white crescent-shaped bars; flanks, grayish brown, becoming reddish toward the tail, undulated with fine black lines; under parts, pure white; under tail-coverts, dusky; bill, black; legs and feet, yellowish brown; iris, yellow.

Measurements — Length, 18 inches; wing, 7.50 inches; tail, 4.20 inches; tarsus, 1.10 inches; culmen, 1.50 inches.

Adult female — Head, neck, and upper parts, light brown; crest, darker; back and tail, dark brown; throat and under parts, white; flanks, grayish brown; wing, brown, with white patch crossed by dark bar; bill, black, with yellowish edge; feet, light brown; iris, hazel.

Measurements — Length, 16.50 inches; wing, 7.20 inches; tarsus, 1.20 inches; culmen, 1.50 inches.

Young male — Head and neck, light brown, with more or less black mottling; crest, brownish white, with brown edge; upper parts, dark brown, tipped with lighter; wings, rump, and upper tail-coverts, dark brown; a few of the tertials with stripe of white; upper breast, dusky gray; lower breast and abdomen, white.

Downy young — Upper parts, brown, darkest on back; lower portions of head and throat, light buff; a light grayish spot on each side of back and rump; breast, pale brown; abdomen, white.

Eggs — Eight to twelve, pure white, and measure 2.10 by 1.70 inches.

Habitat — Breeds from Florida, Mississippi, Louisiana, Colorado, probably Nevada, and Oregon, north locally to Labrador, Ontario, Hudson Bay, Saskatchewan, and northern British Columbia. Winters from Massachusetts, New York, Indiana, Illinois, Minnesota, Kansas, Colorado, and British Columbia, south to Lower California, Mexico, the Gulf states, and Cuba. Rare in the northeastern part of its range. Recorded from St. Michael, Alaska, and from Europe and Bermuda.

A flash of black and white, and he is gone. When other ducks have stopped flying, and you still stay in the blind not watching all directions as carefully as in the early morning, suddenly there is a sensation of something around and you catch a glimpse of this freak streak, too late to do anything more. He came and went as only a hairy crown can. This is the name he goes by along many parts of our coast, although his wide distribution and stunning plumage have given him a number of others, and he is variously called water-pheasant, hairy-head, cotton-head, pond-shell drake, and spikebill.

The hooded merganser breeds along most of its range, from Florida north, but more commonly from the northern United States throughout the fur countries. The nest is placed in a hollow tree often twenty feet from the ground, near a stream or along the shore of some lake, occasionally at a considerable distance from water. The birds fly through the woods and light on a tree with speed and grace. An interesting instance is recorded by Mr. Boardman of where a female wood duck and a female hooded merganser contested for the possession of a nesting-place in the hollow of a tree; later the nest was found to contain eighteen fresh eggs, about a third belonging to the merganser. The brood is first seen in late June, when the young are scarce

HOODED MERGANSERS

the size of bantam chicks. They keep close to the mother and feed on what she selects, seeds and grubs; later on she fishes for them. By early fall they all take flight, and hurry south. We see them on our New England coast in spare numbers by late September, though in the South more commonly. Throughout the interior they are well known on the marshes of most of our lakes and rivers. The hooded merganser frequents the brackish bays of our Southern states; here creeks and ponds in the marshy islands are the spots he loves. We see him in a small, select flock or with his little brown mate, keeping mostly by themselves; in places where protection is afforded quickly showing their appreciation of it, and becoming gentle. As the male swims lightly on the water, he is an ornament of beauty unsurpassed; if startled, springing into the air and flying low and fast with unusual speed. Few birds deserve more consideration for their good looks. Long may he live!

SMEW

(*Mergus albellus*)

Adult male — Plumage, white; a patch at the base of the bill, including lores and eyes, lower portion of crest, middle of the back, two crescentric, narrow lines on the side of the breast and outer edge of the scapulars and rump, black, with greenish reflections on the head; upper tail-coverts, gray; middle wing-coverts, white; greater coverts, black, tipped with white; tail, dark gray; sides and flanks marked with fine, black, wavy lines on a gray

ground; bill, slate; nail, lighter; iris, light gray; legs and feet, slate color, with dark webs.

Measurements — Length, 16.75 inches; wing, 7.60 inches; culmen, 1.25 inches; tarsus, 1.12 inches.

Adult female — Head and neck posteriorly, chestnut-brown; lores and cheeks, darker; throat and sides of neck, white; upper parts, brownish gray, darkest on the rump; jugulum, slaty gray; sides and flanks, brownish gray; under parts, white; tail, brownish gray.

Downy young — Upper parts with sides of head below eye, including back of neck, blackish brown; white spots below eye, at wing joint, on side of back, and side of rump; breast and flanks, grayish brown; rest of lower parts, white.

Habitat — Breeds in northern Europe and Asia, occurring in migration east to the Commander Islands. Winters south to the coasts of the Mediterranean, northern India, China, and Japan. Recorded from northern North America and by Audubon from Louisiana.

A female of this bird, in the British Museum, purchased from the Hudson Bay Company, and a female, obtained by Audubon in Louisiana, in 1817, are the two instances of the occurrence of the smew in North America.

The smew has many of the habits of our hooded merganser, frequenting chiefly rivers and lakes, seldom occurring in large flocks, and nesting in hollow trees. In summer it occurs as far north as the Kola Peninsula, Russia, the Yenisei River, Siberia, and Kamchatka. In England the adult male is known as the white widgeon, and females and young males, in Devonshire, as vare widgeon, from a fancied resemblance to the head of a weasel there called vare.

INTERBREEDING

When we consider the close relationship existing between many of our wild fowl, it seems remarkable that evidences of interbreeding are not more often observed. Many species utilize a common breeding-ground and follow the same migratory courses to the winter haunts. Among the fresh-water ducks certain different varieties are prone to associate, notably the mallard, shoveller, teal, and pintail. In a limited area the black duck breeds in the territory of the mallard. From the general similarities of these two species it is natural to expect the commonest hybrids would be between the black duck and mallard, and this is the case. Crosses between the two are known to most sportsmen of experience. The marshes of Ontario and the coast to the south of the Chesapeake have afforded numerous instances of this hybrid, and in parts of Ontario it is incorrectly known as the black mallard. The writer recently saw a fine specimen of black duck and mallard cross killed in North Carolina; it resembled the black duck, but had distinct mallard markings. Other hybrids resemble the mallard. The green feathers of the head and the recurved feathers of the tail are often noticeable. Two instances of this hybrid are described under the "mallard." As would be expected,

they do not differ materially in size from either species. The mallard is by far the commonest duck to interbreed, possibly owing to its widespread distribution; and next to the cross between mallard and black duck we find several instances of a hybrid between mallard and muscovy — specimens of which are likewise described under "mallard." The muscovy duck in North America is a tropical and subtropical species, seldom, if ever, coming into the United States. The hybrids therefore are probably those of the wild mallard with the domestic muscovy. Mallard and pintail are also responsible for hybrids, and there are several striking instances of this cross. Several years since in October a number of mallard and pintail hybrids were killed at the Long Point Club, evidently all members of the same brood. Specimens of a cross between mallard and gadwall and mallard with widgeon are recorded, and an interesting instance of a pintail and teal hybrid as well as a red-head and wood duck. The hybrid is supposed to be larger than either parent, a rule which is more noticeable the more dissimilar the species. There was at one time a specimen in the collection at Princeton of a supposed hybrid between mallard and brant which was considerably larger than a brant, and as ungainly as might be supposed. Another class of ducks intimately associated in their breeding-grounds are

the canvas-back and red-head. These birds breed in the more open ponds, and it is not uncommon to find eggs of the red-head in the nest of the canvas-back and *vice versa;* the egg of the ruddy duck is also occasionally found in the nests of both the former. Hybrids between these varieties are not to the knowledge of the writer on record. A cross between canvas-back and ruddy duck might be a good thing for a bill of fare, but it would certainly be an oddity in the duck line. Some of the rarer varieties of ducks are not unfrequently mistaken for hybrids; this is specially true in the case of the European widgeon, an occasional straggler to our shores, where it is often thought to be a cross between a red-head and a widgeon, and is called the red-headed widgeon. The ring-necked duck, rare in localities, among many of our gunners goes by the name of bastard broadbill, and doubtless is so considered. Among the geese the best instance of interbreeding is in the cross between the Canada goose and the domestic. This hybrid possesses most of the characteristics of the wild bird. It is regularly barren, but a superior bird for the table. There is no better demonstration of the provision of nature for its own than in the preservation of species. In all probability eggs, the result of interbreeding, are less often fertile than under ordinary circumstances, and hybrids are regularly barren.

Albinism is not uncommonly noticed among the ducks, and albinos of many of the varieties have at one time or another come under the writer's observation. An interesting instance of this was noticed several years ago; in a brood of young mergansers, two-thirds grown, there were two perfectly white birds which were subsequently secured. During the past fall a white teal was seen on the marshes near Port Rowan, and a year ago a white pintail was killed in the same locality. Partial albinism is naturally more common than complete, and there seem to be in all albinos certain parts that do not entirely lose the character of their coloring, such as the feathers of the speculum. Probably few albinos among our water-fowl escape observation at one time or another, and in more than one instance birds marked in this unusual way have demonstrated the fact that the migratory courses vary but little.

CHAPTER V

GOOSE-SHOOTING

ON THE BAYS

In dealing with the wild goose the gunner is confronted with a bird of extraordinary cunning; accustomed to man's methods from his gosling days, the older he gets the wiser he grows. His undoing on occasions is due to the fact that some of his relatives make shrewd decoys, and as such have no conscience about making trouble for the unshot members of the race. Probably the patriarchs of learning and wisdom in the decoy line come from down east, Boston way. In one or two of the clubs there Canada geese are actually trained to fly among the wild flock and bring it toward the blind, where a welcome chorus from the live decoys greets the strangers and alluring honks bring them in. On Long Island there are a few stands of live decoys, but Canada geese are not as regular in their sojourn here as farther south. In the brackish bays of North Carolina they winter, vast hordes of them; but even with all the gunning this country is infested with, comparatively few fall victims. In the ordinary weather

of fall and winter it is hardly worth while to waste much time on Canada geese, but when wind and storm drive the flocks low down under the lee of land the chance is afforded.

The Currituck Club is the club for geese, and here many are killed every year. They have the habit of leaving the quiet shelter of the bay for the ocean, where they spend the day, crossing the outer bars and dunes on the journey back and forth, often low down, coming close to the inner shore on these trips. Here sink boxes are placed in the more favorable locations; when storm-driven the restless flocks lead to and fro, seeking in vain a shelter. This is the chance, and it doesn't come often. Eight or ten trusted honkers from the goose pen at the club are boxed up. A large swan goes along, too, for luck. These are taken to the blind and carefully tethered on the flat, or if in shallow water a platform is driven just under the surface, as swimming all the time gets monotonous. The sink box is now put in shape, — it likely needs bailing out, the edge probably requires a little tinkering, — some sand is thrown up around the front, or possibly sea-weed and sedge; then every vestige that could arouse suspicion is removed. If everything is favorable, and it's mighty seldom it is, the gunner hasn't long to wait. Likely the first intimation of anything out of the ordinary will be a honk from

some watchful decoy and successive honks from a few others, as their attention is roused to the possibility of callers. Very often all this before a sound has been heard or a bird seen; but soon a far-off honk makes it evident there are sharper eyes than a gunner's. What the man with the gun wants to do now is to keep his stomach pretty close to the ground, stay very insignificant-like in his box, and trust his business in the hands of others; they attend to it well. Excitement prevails outside and the distant honks grow nearer; they are coming right along, now with long, low groans of satisfaction at the thought of companions and a rest. What sort of sensations the man in the box has been having only he knows who has been there. To most men under these circumstances desire gets the better of discretion, and sooner or later it becomes irresistible. He just raises his eyes over the edge, and in this particular instance sees six geese, too near for comfort. Close together, the poor frightened things get closer, and at the shot two thump the ground pretty hard; the second barrel winds up matters for a third; the other three have changed their mind about friendly geese and are striking out for Florida. The decoys are happy; it is the old story of misery loves company. Things don't always connect in just this kind of a way.

Geese, though a good big mark, can be missed,

and under all circumstances are hard to kill. Their size often causes the distance to be misjudged. The man in the present instance who is fortunate enough to be in this blind at Currituck on a good goosing day, has had some experience, and he allows most of the birds to keep coming when they once start. Several times since the first chance he has stopped two out of the small flocks that have come his way and has piled up some twenty birds. A large flock, low down, leads toward the blind. Such honking, a bedlam! Finally, as they are about to turn in, an old gander raises his voice above the others; something has caught his eye, he swings the whole mass around and heads them for the middle of Currituck Bay. The end goose comes in a bit too far, and with the shot he makes just twenty-one.

But what of the swan? Tied to his stake he has enjoyed the performance of the morning as much as the geese, though he hasn't honked out any sentiments. On this particular day he earns his salt, for along toward noon three swans, an old bird and two cygnets, see him and come. They don't make any noise about it, but the geese honk away; and when they are straight overhead a gun cracks twice, one of the cygnets closes up and falls on hard ground with an everlasting big thud. This is a good way to wind up, and the decoys and dead birds make a boat load. The finish of

SNOW GEESE

the day came in the evening at the Club, and with a pipe before the fireplace those birds were all shot over.

IN THE STUBBLES

Throughout the West, geese frequent the stubble fields, and here they are often shot from pits or shacks; pits are by far the most satisfactory means when it is possible to dig them. It is often desirable to allow the birds to feed about the changed surroundings for a time before attempting to use decoys; then if they happen to come in small relays instead of in a large flock, there may be a good chance. To me this form of shooting is particularly attractive, and I recall many times my first experience in a goose pit.

It was several years ago, in October, and about the middle of the month, that young Jim Bosworth walked into the kitchen of the Bosworth farm with the information that there was a big flock of geese feeding on the west stubble. This was news we had been waiting two weeks for. Jim had seen the geese that afternoon, and it was a question if it wouldn't be a good plan to let them alone awhile with a little corn for encouragement. I had then a first goose to kill, and the thought of putting off a matter of this sort didn't especially appeal. We compromised on one day; during this time they were to get corn, the next morning Jim was to dig the pit, and the

following afternoon I hoped to preside at the obsequies of a goose. We started, when it came time, in a buggy; this doesn't seem quite in harmony with surroundings, for we were in the wilds of North Dakota, but this special buggy certainly served our purpose. There was room on the seat for Jim and me and the hired man, and under the seat for three young Canada geese, that were unceremoniously jumbled into a sack, where they kicked around for a while and then became quiet. We reached the pit about four in the afternoon, after three miles jogging over stubbles. There wasn't much left of Jim's corn, and according to Jim he hadn't been stingy. The pit was dug deep, the dirt well scattered, in fact there were tracks right up on the edge. It looked like one of those sure things. Jim staked out the three decoys and tied a string to each one of their free legs; these strings were for manipulation behind the screen, and this was his business in the pit. I had two guns, a ten and a twelve. It began to get fairly well along toward sunset, and we were getting a trifle anxious, when the sound of distant honking brightened up matters. The decoys were young and didn't appreciate the importance of speaking up, so Jim proceeded to pull the legs of two; the result was a few distressed honks; they were answered, and a tumultuous droning indicated a big gang of geese. From the noise now they must be behind

the high knoll in front, and that is just where they were; for in a few seconds a great line of birds came into view, close over the ground; there was an everlasting host of them. If we ever get a shot at that line of necks! Gee! they were coming head on, getting bigger and blacker every minute, making such a racket you couldn't hear yourself think. If there had not been two guns close by, I believe I would have been afraid.

Just about the critical moment six geese separated from the crowd and came straight overhead, pretty high up, and here is where I made the biggest mistake in a life of blunders: I stood up in the pit and fired at the head bird. He was as big as the sum total of the other five. The first shot plastered him all over, the second shot did likewise, but he never winced. Then there was the ten-bore, he was still in range; the first I don't think touched him, the second put some shot in a very good place, right in his neck; he folded up clean and hit that soft stubble with such a jolt it about one-quarter buried him. When we finished with his execution, for all that could be seen and heard, there wasn't another goose in North Dakota. That was all; Jim didn't see any more geese on the west stubble. We put that gander in the buggy, — he had to go in front, there was no room behind. He tipped the Bosworth scales at an even eighteen pounds.

GOOSE-SHOOTING IN MEXICO

The large bodies of water that are found at rare intervals in northern Mexico are the resort through the winter of countless numbers of geese: not the Canada goose of the East and Middle West, but the snow goose and the white-fronted goose. In early October the hordes arrive, announcing their coming with discordant clamor. They choose as a resting-place the shallow alkali waters, and as a feeding-ground the neighboring corn stubble, if such there be. A short distance from Minaca is one of these lakes, some twenty miles in length. In the Mexican summer, rains replenish the scanty water supply left over from the spring, and October finds it a paradise for water-fowl. Shut in by the rolling hills of the mesa, yellow with wavy grass, its blue surface reflects a bluer sky. All around, as far as the eye can reach, are herds of cattle, for some six miles away is a ranch; and at this spot, one fall recently, we stopped. Early in the morning a breakfast of tortillas and coffee was served, and before it was finished a Mexican boy appeared with the horses. Guns were slipped into the saddle-cases. Our attendant found room for most of our ammunition in his saddle-bag, and we started for the lake. It was a ride of about six miles, over an open country; but the horses were fast,

and in less than half an hour we looked down from a knoll on the sheet of water some two miles away. Along the farther shore was a bank of white, shining in the light of sunrise — a solid bank of snow geese. Scattered over its surface everywhere were flocks of ducks and geese, black masses of them. We hurried on, passing through herd after herd of cattle, which increased in numbers as the water was approached. A coyote stopped to take a fleeting glance from the top of a hill opposite, then disappeared. A jack-rabbit scurried from in front. A familiar cry overhead caused us to look up. It came from a flock of sand-hill cranes, far out of reach, which were sailing on toward their feeding-ground in the stubble. We reached the edge of the lake, and hundreds of ducks rose as the horses neared them, mostly shovellers and teal, but mallard, widgeon, and pintail were all there. The geese were across the lake, thousands in one band. Every now and then a white line joined the resting birds, and at the approach of a flock their discordant cries could be heard a mile away. How to get a shot seemed more or less of a problem, owing to lack of cover. Finally we noticed a few bunches of rushes extending well out into the lake, the only possible chance to hide. We waded out and took a position in the farthest clump. The Mexican led off the horses and started on a

tour to the farther shore. It was a long way off, almost four miles, but there was plenty to watch. Every few minutes flocks of ducks would pass over us in range, but we let them go. Gulls circled around, crying at the unusual sight of two men with guns. We looked over at the geese. At times cattle seemed almost among them; yet the white assembly did not move, and we only heard them when a flock was about to alight to those on the ground. The horses were getting closer, and finally a part of the body started, to settle down a little farther on. But presently a tumultuous clamor, and the entire company was in motion. Line after line separated and led out into the lake. Some followed the opposite shore; an immense flock led toward our clump, and we crouched in the water. On they came, scarcely a hundred yards off. But geese are uncertain, even in Mexico, and, for some reason best known to themselves, they turned when just out of range and led toward the shore beyond us. In a few minutes they were reassembled and the immediate prospect of a shot gone. The Mexican, with his string of horses, continued down the opposite side, evidently after birds we could not see. Ducks were around us all the time, and flocks drifted by within easy range, unmolested. Before long we heard the familiar cry, and looked to see a mass of white heading for the flock on the shore; our

blind was right in their line, and they came on, low down, over the water, nearer and nearer; finally fifty or more seemed directly over us, so close we could see their red bills and legs. This was the chance: back to back we raked them, four barrels; three birds fell on one side, two on the other. The reports started all the wild fowl in the country. In a few minutes part of the first flock came over us from the opposite direction, and two dropped. A flock of geese swung in range over the dead birds, and we killed two more. For an hour the shots were frequent, but the birds became wiser every minute, and kept to the middle of the lake or else came over the blind out of range. We picked up eighteen, a dozen white, the rest white-fronted — all one Mexican could pack on a horse.

THE GEESE

(*Anserinæ*)

The geese are the largest water-fowl we often see in eastern North America, and even they are seldom found except in certain localities. Their necks and legs are longer than those of the ducks and mergansers, and the bill, though somewhat like that of a duck, is shorter, higher at base, and more fleshy, with a larger nail at the tip. They agree with the ducks and mergansers in having the space between the eye and the bill covered

with feathers. The hind toe is without a membranous lobe. While most of them perform long migrations, breeding in the far north and reaching temperate latitudes for the winter, one species remains near Bering Sea throughout the year, and some of the most peculiar forms are confined to the southern hemisphere. The Alaskan species, the emperor goose, feeds on an animal diet, but most of the others on grasses, grain, or water-plants, and their flesh is a valuable addition to the bill of fare. Many savage races have in the past depended on geese for a large portion of their food. The natives of the west shore of Hudson Bay, in the eighteenth century, would kill each spring from five to six thousand snow geese and salt them for food; and the Eskimo, living between the mouths of the Kuskokwim and Yukon rivers, in Alaska, as recently as the closing quarter of the last century, were accustomed to stretch long lines of net across the marshes, and then drive the moulting geese and ducks into them, thus destroying thousands.

Geese do not dive, but when feeding in water, which must be shallow, stretch their long necks to the bottom, elevating the rest of the body in the air. A flock of brant thus changing from black to white is an interesting spectacle. Many species feed almost entirely on the land, and some seldom visit the water. The sexes are alike in

plumage and the speculum usually absent. They breed on the ground in retired marshes, on an island in some lake, or rarely in the deserted nest of a large bird, and often collect quite a mass of rubbish for a nest. The female sits on the eggs while the male protects her, and both will defend their young from an intruder, thrusting forward their long necks and hissing, striking with their wings, or flying at his head. In migrating they fly swiftly and far, travelling in V-shaped flocks, led usually by an old gander. In one species at least, the Canada goose, the family migrates together, and in captivity a pair once mated will remain so for life. If separated they will take other partners; but if brought together again, even after the lapse of a year, it is said, will return to each other.

The tree-ducks, of which two species occur near the Mexican border of the United States, are placed by most ornithologists among the geese. While the bills of these birds closely resemble those of the ducks, other anatomical details indicate a nearer relationship to the present sub-family.

Among the interesting geese, natives in other parts of the world, is the Egyptian goose (*Chenalopex ægyptiacus*). This bird has most of the head and neck brown; the upper part of the throat and centre of the abdomen, white; most of upper parts, breast, and flanks, ferruginous

buff, barred with dusky; some of the scapulars, chestnut; the wings, black, with a green speculum; the wing-coverts, white; the lower back and tail, black; the lower tail-coverts, buff; a broad chocolate-colored patch in the centre of the breast; and the bill and legs, pinkish, — all together a very richly marked bird. Its home is in northern Africa, but it occasionally wanders into Europe, and two specimens have been taken in this country, one on Long Island, the other in Maryland. As this species has never been found on the Atlantic islands, and is often kept in aviaries, it is probable that these birds escaped from captivity; but the above description will be of assistance to any one who should chance to shoot another.

Another interesting African goose has a spur on the bend of the wing; and a third, in addition, a high knob on the forehead. One goose inhabits the high Andes of western South America, coming down to the plains only in winter; and there exists in the tropics of the Old World a group of small geese, not larger than a teal, which differ also from other geese in spending most of their time in the water.

But the strangest of all strange geese live in Australia and New Zealand. The Australian bird is large, with a glossy, greenish black plumage, relieved by pure white shoulders, rump, and lower

parts. Its toes are webbed only to the first joint, and a warty skin extends from the nail of the bill to behind the eye. Its habits are said to resemble those of a crane more than a goose. The New Zealand bird is still more peculiar. Its feet are but little more webbed than the last, and its short, thick bill is covered from the nail with a light yellow skin, similar to that on a hawk. It is a large and heavy bird, with short legs, brownish ashy in color, and inhabits the dry interior plains, never going near the water.

LESSER SNOW GOOSE

(*Chen hyperborea*)

Adult male and female — Entire plumage with the exception of primaries, snow-white; the head sometimes tinged with rusty anteriorly; primaries, jet-black; primary coverts, ash-gray; bill, pink; nail, white; feet, pink or purplish pink; iris, brown.

Measurements — Length, 25.50 inches; wing, 15.75 inches; tarsus, 3.30 inches; culmen, 2.10 inches.

Young — Plumage, ashy gray, becoming white on chin, abdomen, lesser wing-coverts, base of primary coverts, tail-coverts, and tail; bill and feet, a dirty pink; the adult plumage is not fully acquired before fourth year.

Eggs — Four to six in number, of a yellowish white color, and measure 3 by 2 inches.

Habitat — Breeds on the Arctic coast of Alaska, from Kotzebue Sound to Point Barrow and probably east to Liverpool Bay. Winters from British Columbia, Nevada, Utah, Colorado, and Kansas, south to California, Arizona, Texas, Louisiana, and Mexico, and very rarely in Vermont, Massachusetts, Rhode Island, Connecticut, New York, and New Jersey; very rare east of the Mississippi, but reported as a straggler in Michigan,

Indiana, Maine, and Nova Scotia. Recorded also from northeastern Asia, Japan, Hawaii, and Europe, and this, or *Ch. h. nivalis*, from Bermuda.

For a long time no distinction was made between the snow geese. There is, however, no doubt as to the two separate races, although a differentiation depending entirely on size is rather unsatisfactory. Careful observation has demonstrated the fact that the lesser variety is strictly inland and western in its distribution, occurring from the Mississippi Valley to the Pacific Coast, while the greater snow goose is found casually inland, but most commonly along the Atlantic. Both varieties breed in the far Arctic regions.

The lesser snow goose is very abundant throughout the northern Mississippi Valley, arriving in Dakota early in October and wintering in Texas and about the Gulf. There is also a migration along the Pacific Coast, the birds being found throughout California and far into Mexico during the winter. The breeding-ground is so far within the Arctic circle that the Indians and Eskimo north of Hudson Bay tell of the birds still flying on. The nest has seldom been taken. Along the Yukon they are common in the spring, but do not breed in the vicinity, nor do they return by this route in the fall. Throughout the northern parts of Hudson Bay this species is very abundant in early May, arriving in small flocks, soon

congregating in vast numbers. Here they are exposed to slaughter by the Indians, who depend upon them extensively at this season for food, shooting them on the feeding-grounds at night. Their habit of huddling together at the approach of a light enables many to be killed at a single shot. The young fly by the middle of August, and early in October the first relays appear within our boundary. While sharing the resorts of other wild fowl they keep to themselves, usually quiet; if excited or started from their roosting-place, the din is inconceivable. The flight, in lines, is strong and far out of range. As the vast flocks pass overhead they whiten the sky and, alighting, give the earth the appearance of snow. No more impressive sight can be conceived than the countless numbers of these birds covering the prairie, — unfortunately, now a scene of the past. Recently, the writer saw this goose in large flocks in northern Mexico about May 10. They frequented a large, shallow lake on the mesa. He was informed that quite a number remained throughout the summer, but according to the natives never bred. This small remnant was likely composed of barren geese.

In the sections of North Dakota where this goose is abundant in spring, at the first break of dawn the flocks start for the feeding-ground, which may be ten or fifteen miles from the lake on whose

borders they have passed the night. Where one flock alights the others follow, and soon the ground is white. They feed among the wheat stubble or on the young marsh-grass. The borders of a slough where they have fed looks as if cut by a machine. About noon they go back to the lake, and toward the middle of the afternoon start again for the feeding-ground, which may be a totally different locality from that of the morning, to return once more to the lake as the sun sinks to rest.

Snow geese are shy and difficult of approach, but occasionally can be ridden upon from horseback, or even will allow a wagon to be driven within range, especially if a heavy wind be taken advantage of. Decoys seldom attract them unless of their own kind. Passes sometimes offer excellent shooting, and many are killed as they fly from feeding-grounds on the stubble to neighboring water. The food consists of water vegetables and grasses of all kinds, berries, and grain when the locality affords it. The flesh does not stand in high repute, though in places the young birds are prized. The snow goose bears domestication, and there are numerous instances of its confinement. In cases where barnyard geese are mated with it the eggs are unproductive. Mr. Ross speaks of an instance where a fur trader in the Red River settlement domesticated a pair of these birds, one

of which died. The next fall, as a flock of snow geese was passing over, one of them separated from the others, mating with the tame goose, and remained through the winter. The following spring it rejoined its brethren and proceeded north. In the fall it again returned. This is said to have been repeated for several years. (B. B. & R.)

Perhaps the most common name for this bird is the white brant. In localities it is called white wavey. By the Russians it is known as barley goose. The weight of the snow goose is from four to six pounds.

GREATER SNOW GOOSE

(*Chen hyperborea nivalis*)

Adult male and female — General plumage, white, with black primaries, and primary coverts, ash; frequently a rusty tinge on head anteriorly; bill and feet, pink; iris, brown.

The young bird has a grayish tinge to neck, head, and upper part. This bird resembles the lesser snow goose precisely, differing from it only in size.

Measurements — Total length, 34 inches; wing, 17.50 inches; tarsus, 3.30 inches; culmen, 2.60 inches; the average difference in measurement between these two varieties is length, 9 inches; wing, 1.70 inches; tarsus, .70 inch.

Habitat — Breeds in northern Greenland, and possibly at Liverpool Bay, and the Barren Grounds on the Arctic Coast, south to Hudson Bay. Winters chiefly on the Atlantic Coast of North Carolina, occurring rarely at this season also in New Brunswick, Pennsylvania, New Jersey, Maryland, Virginia, and south to Florida, Key West, and Cuba; also on the Gulf Coast of Louisiana and Texas, occasionally north to western New York, Ohio,

and Michigan. In the migrations occurs rarely east to Newfoundland, and west to Manitoba, Assiniboia (?), Alberta (?), North Dakota, Nebraska, and Colorado.

This species can nowhere be said to be common. It is found most frequently along the coast of Virginia and North Carolina, where it winters in the sounds and bays, arriving in early November and leaving in March. At times the bird is abundant in Cuba. Dr. Degland, according to Mr. Dresser, states that when Cienaga de Zapata begins to dry up, portions are covered with snow geese, and he had killed at least thirty in one season. (B. B. & R.)

North of the Chesapeake the bird is rare. Snow geese are taken occasionally off the coast of Maine. Small flocks are sometimes seen on Long Island. Along the New Jersey coast they are more abundant and go by the name of red geese, probably from the color of the bill and legs.

July 10, 1893, a specimen of the downy young of the greater snow goose was obtained together with the adult female at Glazier Valley, Greenland. (Lieutenant Peary's Expedition.)

Nests of snow geese have been found near Liverpool Bay. They were placed on a small island in a lake in holes in sandy soil, and were well lined with down. (B. B. & R.)

Its habits are similar to those of the lesser snow goose. The bird is a high, strong flyer, the flight

being in lines. It seldom utters any note, though occasionally, when attracted by other geese, or wounded, a shrill honk is heard. A white line of these birds along the shore or high in air is a beautiful sight. On Currituck Bay small flocks are not infrequently seen along the sand-bars, where they are occasionally shot over live geese decoys, or sometimes when a straggler comes within range of the blind. In one of the clubs, among the decoy geese, is a live, domesticated bird of this species, almost as large as a Canada goose.

Grasses growing under water, various vegetables, and small crustaceans are its diet. The flesh is not prized for food. The weight is from six to ten pounds.

BLUE GOOSE

(*Chen cærulescens*)

Adult male and female — Head and upper half of the neck, white, sometimes washed with rusty anteriorly; back and breast, dark slate; the feathers tipped with lighter brown; wing-coverts, blue-gray; secondaries, dark brown, edged with white; primaries, black, fading into gray; flanks, brownish gray; under parts, gray; rump, upper and under tail-coverts, grayish; tail, deep brownish gray, bordered with white; bill and feet, reddish; iris, brown.

Measurements — Total length, 28 inches; wings, 16 inches; tarsus, 3.10 inches; culmen, 2.20 inches.

Young — Somewhat similar, but less showy; the head and neck, gray-brown, with a white chin; the body more cinereous than in the adult; bill and feet, dusky.

Habitat — Breeds probably on the northeastern shores of Hudson Bay. Winters chiefly on the coast of Louisiana, occasionally

up the Mississippi Valley to Illinois. Migrates through the Mississippi Valley, west to Manitoba and North Dakota. Occurs very rarely in migration or winter in California and in Ontario, Michigan, Indiana, Ohio, Pennsylvania, New Brunswick (?), Maine, Massachusetts, Rhode Island, New York, New Jersey (?), North Carolina, Florida (?), and the West Indies.

For a long time the blue goose was supposed to be the young of the snow goose, but it is now established as a distinct species.

This bird occurs throughout North America. In Dakota, and along the Mississippi Valley, small numbers are killed on the fall migration. On the Pacific Coast the bird has not been taken, and is very rare on the Atlantic, a specimen having been recorded on Grand Manan.

The breeding-ground is supposed to be in the impassable bogs lying northeast of Labrador, the geese nesting on the solid and dry tufts in the morasses. (B. B. & R.) The eggs and nest have not been found.

In the spring James Bay is crossed by the blue geese, coming from the east in flocks by themselves. In the United States the bird arrives in early October, leaving late in March. It is most frequently seen in flocks of snow geese, and undoubtedly accompanies the white-fronted goose, though its presence with the latter would be less easily detected. Its southern migration extends to Louisiana and the Gulf. The habits resemble those of the snow goose. Its flesh is palatable.

Other names for this bird are blue snow goose, blue wavey, bald-headed goose, white-headed goose, blue brant, blue-winged goose. In its full spring plumage, the blue goose is seldom taken in the limits of the United States, and it is perhaps the rarest of our geese.

ROSS'S SNOW GOOSE

(*Chen rossii*)

Adult male and female — Plumage, entirely snowy white; the primaries are black, fading into gray; bill and feet, dull red; the base of the bill is covered with wartlike corrugations, though this is not always the case; loral feathering forming a nearly straight line on upper mandible. This outline is convex in the other members of the genus.

Young — White, with a grayish cast; bill and feet, dusky.

Measurements — Length, 23 inches; wing, 14.50 inches; tarsus, 2.75 inches; culmen, 1.60 inches.

Habitat — Breeds in Arctic America, exact place unknown. Winters in California south to Orange County, and in Mexico. Occurs in migrations from Hudson Bay and North Dakota, west to Fort Anderson, Great Slave Lake, British Columbia, and Oregon.

This little goose is the smallest of all the geese, weighing less than three pounds, — smaller, if anything, than a mallard duck. It is one of the rarer varieties, being found occasionally in flocks of the lesser snow goose, sometimes by itself. In Montana and Dakota this bird occurs sparingly. It has been seen in large flocks in the San Joaquin Valley. The bird has a cackling cry, but in its flight and habits resembles the larger members of

the family. The breeding-ground is in the remotest North; the nest and eggs have not been taken. The flesh is delicate and palatable. The only specimen of the Ross's goose coming under my observation was shot by Mr. Sheldon in northern Mexico. It was one of a pair, and was found along the edge of a shallow lake. It is also known as the horned wavey, referring to the excrescences about the bill.

EUROPEAN WHITE-FRONTED GOOSE

(*Anser albifrons*)

Differs from the American subspecies in having a slightly shorter bill (culmen, 1.60 to 1.75 inches), a shorter tarsus (2.25 to 2.80 inches), and usually paler lower parts. Specimens intermediate in the coloring of lower parts have been taken in Great Britain and Iceland, and intermediates in measurements in western Greenland.

Habitat — Breeds in the northern parts of the eastern hemisphere, including Iceland, north to Nova Zembla and the Yenisei River above 72° north, and passes south in winter to Egypt, India, China, etc. Of doubtful record from southeastern Greenland.

The habits of this bird are similar to those of its American relative.

AMERICAN WHITE-FRONTED GOOSE

(*Anser albifrons gambeli*)

Adult male and female — Forehead and base of bill, white; remainder of head and neck, brown; back and wings, ashy; feathers tipped with brown on the upper parts; the lower parts, of a gray cast with black blotches. The variation among individuals of this species is extensive, the lower parts, in some instances,

having but one or two black spots; in others, the black predominates; upper and under tail-coverts, white; tail, dark brown, bordered with white; bill, yellowish white; feet, yellow; iris, brown.

Young — Head and neck, dark brown; under parts, brownish gray without the black marking.

Downy young — Above, olive-green; below, greenish yellow.

Measurements — Length, 28 inches; wings, 15.25 inches; tarsus, 2.60 to 3.20 inches; culmen, 1.80 to 2.30 inches.

Eggs — Five to seven in number, of a dull white color, and measure 3 by 2 inches.

Habitat — Breeds in western Greenland north to 72°, on the coast and islands of the Arctic west to Bering Strait and northeastern Siberia, and on the Alaskan coast of Bering Sea to the lower Yukon, and is said to breed on the coast of British Columbia south to Vancouver Island. Winters on the Atlantic Coast rarely, from New Jersey and North Carolina to Florida and Cuba; on the coast of Louisiana and Texas, south into Mexico, and rarely north to Illinois and possibly Ohio; in Arizona, and on the Pacific Coast from British Columbia to Lower California and Mexico. Abundant on the Pacific Coast in migration; tolerably common in the western Mississippi Valley, and rare east to the Atlantic Coast, where it occurs irregularly as far north as northeastern Labrador. Occurs also in Japan and Hawaii.

Mr. MacFarlane found this species breeding abundantly on the Arctic Coast and in the islands of the Arctic Sea. The nest is composed of grasses, down, and feathers, situated frequently in wooded districts in the vicinity of fresh-water lakes. The breeding-ground is on the Anderson River, the shores of Bering Straits, and the Commander Islands. Incubation is established early in July, during which time the birds spend much of their time on land, feeding on berries and various

grasses. By the middle of July the young are hatched and the family take to the water. The bird first appears within our limits in September, arriving in small flocks of from ten to thirty, the young birds accompanying the old. They fly in lines and wedges, making a great deal of noise, a sort of discordant cackle. The flock is usually heard before it is seen. When a suitable feeding-ground has been selected, which is often a wheat stubble, the birds frequent it until the food supply is exhausted, or a few shots have made them wise. They quickly learn danger and become exceedingly wary; sentinels are appointed, and if once disturbed while feeding, seldom return to the same field. They make frequent trips to neighboring waters for a drink and rest, their flight announced by the loudest din; on these journeys, early in the morning and in the evening, their chosen time for moving, many of them are killed. It is usually an easy matter for the hunter to select his position, as the line of flight varies but little. The first small flocks are seen in the late afternoon. From then on until dark they come in continuous stream, all following in the same straight course. Occasionally the bird is killed from pits dug on the feeding-grounds, and sometimes it will hail to Canada geese decoys. The food of this bird consists of various water-grasses; in Kentucky, of beechnuts and acorns. Where opportunity af-

WHITE-FRONTED OR GAMBEL'S GEESE

fords, it visits the grain-fields, greedily feeding on the corn and wheat stubble. The bird is excellent for the table, particularly the young. Other names for this species are laughing goose, speckled belly, speckled brant, gray brant.

BEAN GOOSE

(*Anser fabalis*)

Adult male and female — Upper parts, dark brown, edged with grayish white; head and neck, grayish brown, darkest on the head, with a white patch on forehead; rump, brownish black; wings, brown; coverts, grayish, edged with white; breast, pale brown; sides and flanks, brown with pale edges; upper and under tail-coverts, abdomen, and vent, white; bill, black with a middle part of deep orange; iris, dark brown; legs and feet, orange.

Measurements — Length, 32 inches; wing, 19 inches; culmen, 2.30 inches; tarsus, 3.10 inches.

Female averages somewhat smaller than the male.

Habitat — Breeds in northern Europe and northern Asia, from Russian Lapland east to the Yenisei River, and north to Nova Zembla. Winters south to southern Europe, northern Africa, China, etc. Recorded from northern Greenland.

The only reason for admitting the bean goose to the check-list of North American birds is the fact that a single specimen in the museum at Copenhagen is stated to have come from Greenland.

Though often common in Europe and Asia in migrations and in winter, the bean goose, like so many others of its relatives, seeks the far North to raise its young. There it lays five or six eggs. It feeds in the open fields, is very shy, and is less

aquatic in its habits than most water-fowl. If chased during the moulting season, when from the loss of its primaries it is unable to fly, it will attempt to escape observation by flattening itself on the ground with its head thrust forward, and will not take to the water unless absolutely cornered.

CANADA GOOSE

(*Branta canadensis*)

Adult male and female — Head and neck, black with a white patch on each cheek extending across the throat; upper parts, dark brown; feathers tipped with lighter; lower parts, paler than the upper, the light gray sometimes fading into white about the anal region; primaries, rump, and tail, black; upper and under tail-coverts, white; legs, feet, and bill, black; iris, brown.

Measurements — Average length, 38 inches; wing, 18 inches; tarsus, 3 inches; culmen, 2.15 inches.

Young — Similar to the adult, but the white cheek patches are speckled with black, and they are somewhat smaller.

Downy young — Above, golden olive-green; below forehead and sides of head, pale greenish yellow.

Eggs — Five to nine in number, dull white, measure 3.50 by 2.50 inches.

Habitat — Breeds from Newfoundland and Anticosti, Indiana, possibly Ohio, Michigan, Minnesota, Nebraska, Colorado, Utah, Nevada, and Oregon, north to northern Labrador, Hudson Bay, lower Mackenzie, the interior of Alaska (?), and Cook Inlet (?); said to have formerly bred in Massachusetts, and a set of eggs recorded from Tennessee. Winters from New Jersey, occasionally north to Massachusetts, Nova Scotia, and Newfoundland, Ohio, Indiana, Kentucky, Missouri, South Dakota rarely, Nebraska, Utah, Oregon, and British Columbia, south to Florida, Jamaica, the Gulf states, Mexico, and Los Angeles County, California. Less common on the Pacific Coast. Occurs in Bermuda.

Formerly the wild goose bred throughout temperate North America, and at the present time occasionally breeds within our boundary, in North Dakota and the adjacent states. The large body of western geese, however, pass on to the country lying north and west of Hudson Bay, the Atlantic geese breeding in Labrador and to the north and west of it, and in Newfoundland. In the Hudson Bay region they are among the first spring arrivals, and the foremost stragglers are seen in April. By early May large numbers have arrived; for a time they remain in flocks, and frequent the shores and shallow water, but soon separate into pairs and select some small inland lake or marsh. The nest is usually on the ground, carefully formed of grasses and weeds, of large size and somewhat raised. Sometimes a stump is chosen, and there are instances of the birds nesting in trees, using the deserted nests of hawks or ravens.

In the Okanogan district of British Columbia the Canada goose is said to breed frequently in trees in the deserted nests of hawks. Mr. Charles de B. Green reports finding there in the same nest in a tree, two eggs of the osprey and three of this species, both ospreys and Canada geese being present and complaining. One egg of the goose was left in the nest, and a week later he found the osprey sitting on this egg while the geese were not seen in the vicinity.

The little goslings at once accompany the old birds to the water and quickly become expert in diving and hiding. In July the parents moult, and are for a time unable to fly. While in this helpless state they are eagerly hunted by natives. The mortality at this time might account for the fact that we seldom see more than three young birds in one family. Early in September they reassemble on the larger bodies of water and await a favorable time for departure. Restless at the thought of the long flight, with the first fair wind the procession starts. Small flocks lead the way, and soon the entire multitude has gone. Shortly we hear them within our boundaries. By the middle of October they are well established for the fall, and no visitor is more welcome. Their honking tells of frosts and cold nights. The advance guards appear in Dakota, Minnesota, and Montana, and along the coasts at about the same time. Successive relays augment the first comers, and by early November they congregate in vast flocks. As they assemble on their favorite feeding-grounds, the host presents an impressive sight. The ground selected is well protected from any attack, no foe can approach unnoticed and unchallenged. Ever on the alert and wary, the flock is guarded by sentinels tried in the service, who know well the arts of man. While undisturbed they indulge in more or less gabble

among themselves, but when their suspicions are aroused — silence! Every neck is craned, another second and flapping wings announce they are off. There is no alarm cry, and only when once under way and out of danger is their honking heard. The flight is in lines or wedges, the birds in regular array under the command of an experienced gander. On the migrations their power of flight is remarkable. All day long, and the distant music at night, tells of the tedious journey far overhead still going on. Straight for the destination, they seldom tarry and then only when weariness or storm compel. Under these circumstances the birds are occasionally visitors in unexpected places. One spring two young Canada geese were seen in a cemetery on the outskirts of New Haven, and remained in the vicinity for a day or more.

The majority of geese frequenting the Atlantic states follow the coast line in the fall, tarrying in the large shallow bays of Massachusetts, Long Island, and New Jersey, but wintering in the Chesapeake and off North and South Carolina. Those passing through the middle of the United States travel along the Mississippi Valley and winter in Texas, Louisiana, and the adjacent Gulf Coast.

The approximate dates of occurrence in these localities are: Massachusetts, Long Island, and

New Jersey, November 20 to December 15, March 7 to April 1; Chesapeake Bay and south, November 15 to March 1; Dakota, Minnesota, and Montana, October 15 to December 1, March 15 to April 7; Kansas and Nebraska, a little earlier in the spring and later in the fall. South of the United States the bird is not abundant.

In Massachusetts the small fresh-water lakes near the coast were formerly favorite resorts for Canada geese in spring and late fall, and at the present time many are killed by the clubs now in possession of the best locations. Here trained wild geese are employed and decoying reaches its highest art. Blinds are built in close proximity to the club-house, surrounded by a large stand of wooden stools. Just outside of these the live birds are tied. A watcher is on duty day and night. If the honking of a far-off flock is heard, fliers are let loose; geese that fly within sight of the wild birds, perhaps mingle with them, then returning to the decoys. In this way the entire flock is brought within range and exposed to a merciless fire.

Along the coast of North Carolina most of the geese in quiet weather spend the day well out of reach offshore, or if much molested in the safe retreat of the ocean, crossing the bars at the intervals to feed and drink, at dusk seeking the shelter of the bays. When stormy or windy they remain

inside, frequenting protected water and the larger ponds on the marshes. Now is the best opportunity for shooting them. Live Canada geese decoys are staked out in front of the blinds, care being taken to tie them in water they can walk in. The favorite locations are small bodies of water or bays in close proximity to the feeding-ground, or points and bars along the line of flight. Should heavy weather break up the large flocks and drive the birds low down, they come to the stool readily and often forty or fifty are killed in a day. The wild decoy appreciates well his part and uses all the means in his power to allure the on-coming birds, calling to them and flapping his wings.

In the Western states geese feed on stubbles, and they are shot from blinds or pits. If not much hunted they decoy readily, but soon learn to avoid danger. The bird is very fond of spending the night on fresh-water ponds and lakes, and this habit is taken advantage of. At dusk or soon after they begin to arrive, small flocks leading up against the wind, each in the same line. Honking usually betrays their presence, louder and louder until a black line appears for an instant overhead, and the thud of a falling bird follows the gun's flash. A little of this shooting teaches them to come to their resting-place from various directions, high up, and often noiselessly.

When once quiet for the night, they can readily be approached by a light, huddling together at the strange sight. Night hunting, however, is at the present time in less repute than formerly and is fortunately little resorted to. Geese are sometimes killed in numbers from ice blinds, when small holes of open water are all that remain in the frozen bay. This method is frequently employed along the northern coast, Nova Scotia, Prince Edward's Island, and Cape Breton. A wounded goose is often exceedingly difficult to capture, swimming and diving well or skulking with the head just in sight. The food consists of various water grasses and vegetables, shellfish and crustacea; grain, when the locality affords it; in the summer, insects and berries.

For the table the young bird is excellent, and it is a common practice in shooting them, to pick out when possible the smaller geese, for the old birds are generally decidedly larger.

The Canada goose has long been domesticated and often breeds in captivity. When once two captive birds have paired, they not infrequently breed regularly. I saw a pair of Canada geese on the Magdalen Islands that raised a brood each spring, selecting for their nest a large brush pile, some hundred yards from the house. The gander carefully protected the nest during the absence of the goose, keeping off any intruder.

The hybrids with domestic geese are common and supposed to be a superior market bird. While hunted relentlessly from the breeding-ground to the winter home, the cunning of the wild goose has stood him well, and it is a pleasant thought to feel that, perhaps, one member of our family of water-fowl holds his own.

HUTCHINS' GOOSE

(*Branta canadensis hutchinsii*)

Similar to the Canada goose in plumage, but smaller in size. Tail of 14 to 16 feathers; in Canada goose, 18 to 20 feathers.

Measurements — Length, 30 inches; wing, 16.25 inches; tail, 5 inches; tarsus, 2.75 inches.

Eggs — Six to eight in number, dull white, measure 3 by 2.05 inches.

Habitat — Breeds from Hudson Bay and possibly British Columbia north probably to Cumberland, the coasts and islands of the Arctic near Fort Anderson and Kotzebue Sound, the Bering Sea coast of Alaska, and on the Aleutian, Commander, and Kuril islands. Winters from Kansas, Colorado, Nevada, and British Columbia, south to Louisiana, Texas, California, San Quentin Bay, Lower California, Arizona, and doubtless Mexico. In the migrations, very rare east of the Mississippi Valley, but recorded from Wisconsin, Michigan, Indiana, Ohio, Maine, Massachusetts, Connecticut, New York, Virginia, and North Carolina. Recorded also from Japan.

While resembling the Canada goose in plumage, the Hutchins' goose is readily distinguished by its size and by the different character of the note. As a rule the bird is less wary.

On the eastern coast specimens of the Hutchins'

goose have been taken off Cape Cod, and at times appear in Boston markets from this locality. On Long Island the bird is well known, though rare, and goes by the name of mud goose. Off North and South Carolina this goose is occasionally seen in small flocks by itself, or in company with the Canada geese. Here it is called gabbling goose. Along the Pacific Coast the bird is a common variety, appearing early in October, and frequenting the salt-water marshes, often going a considerable distance back from the shore.

When inland, they are sometimes approached on horseback or driven upon by oxen. Many are killed in the line of flight. They decoy readily on their feeding-grounds. Their food consists of shellfish and crustacea, various water vegetables, and when opportunity provides, grain. The flesh, at times fishy, if the birds have been feeding inland may be excellent, and is of a whiter character than that of the Canada goose. In Dakota and along the Mississippi Valley, the Hutchins' goose is more common in spring than fall, large flocks passing through the interior in March on their way north.

The breeding-ground is within the Arctic circle, on the shores and islands of the Arctic Sea, also on the lower Anderson River.

The birds separate from the flock in pairs early in June; the nest is placed in marshes near the

shore or on the sand beaches. It has been found near the base of cliffs, in company with the nests of other sea-birds. In one instance the deserted nest of a crow, in a tree about nine feet from the ground, was utilized. This might have been accounted for by the fact that the ground was covered with snow. (B. B. & R.)

The weight of this bird is from three to six pounds. Other names are little Canada goose, little gray goose, prairie goose, bay goose.

THE WHITE-CHEEKED GOOSE

(*Branta canadensis occidentalis*)

This form is the western representative of the Canada goose, found along the Pacific Coast from Alaska to California. A differentiation is perhaps questionable, and the two varieties undoubtedly occur in company with each other. The distinction is in the back and wings, which are of a lighter brown than in the Canada goose, the lower parts being almost as dark, and by a white collar around the lower part of the neck, where the black terminates; this collar is noticed in the fall and winter, but is absent in the spring and summer plumage. The measurements are similar to those of *Branta canadensis*.

Habitat — Breeds from northeastern California to Sitka, and possibly Cook Inlet, Alaska. Winters chiefly in the interior of California. Reported from Michigan, and thought to occur at Fort Anderson; both probably mistakes.

The white-cheeked goose has a limited distribution, and is not a particularly well-known bird. In the winter it ranges south into the interior of California.

These birds breed in detached pairs in Okanogan County, Washington, sometimes gathering in the fields to feed. A nest found there by Mr. William L. Dawson was situated on a shelf of rock directly over the gorge of the Columbia River. Four goslings, bright grass-green in color, mottled with olive, nestled there on a bed of down, the female flying from the nest as Mr. Dawson approached.

CACKLING GOOSE

(*Bernicla canadensis minima*)

This species bears the same relation to the white-cheeked goose as Hutchins' goose does to the Canada.

Adult — The white cheek patches are separated by a black bar about .75 an inch wide. It has a white collar at the base of the black neck, between it and the upper gray of the breast. Tail feathers 14 in number. In the young bird the white collar is less marked.

Measurements — Length, 24 inches; wing, 13.50 to 14 inches; culmen, 1.10 inches; tarsus, 2.50 inches.

Eggs — Five to eight in number, white, measure 2.80 by 1.95 inches.

Habitat — Breeds on the Alaskan shores of Bering Sea, chiefly on or near the lower Yukon. Winters from British Columbia south to Ventura County, California. Reported in the migrations from the Pribilof and Aleutian islands, and Hawaii, and in the United States as far east as Michigan, Wisconsin, and Colorado.

The cackling goose differs from the white-cheeked goose in its smaller size and in the number of its tail feathers, which, in the former variety, are eighteen to twenty in number. It

differs from the Hutchins' goose in the black bar separating the white cheek patches, and in having a white collar about the neck. Both of these are wanting in the Hutchins'. It also averages somewhat smaller, being next to the Ross's goose, the smallest of our geese.

This goose ranges from the mouth of the Yukon along the coast to southern California, and in localities is a common variety. Through the Mississippi Valley the bird occurs but rarely. The summer home is in Alaska, about the mouth of the Yukon, where it breeds in large numbers, and quantities of the birds and eggs are taken by the natives for food. The nest is on the ground, generally close to water, and composed of grass or reeds, and lined with down. The young birds are hatched in early July, and by September are gathered in flocks, appearing along our Pacific Coast early in October. The note distinguishes it from the larger geese, being a low honk. The flesh is excellent.

COMMON BRANT

(*Branta bernicla*)

Similar to *Branta bernicla glaucogastra*, but with the lower parts as dark as in *Branta nigricans*; the white on the neck, however, not meeting in front.

Habitat — Breeds "in the Taimur Peninsula, Siberia, in Nova Zembla, Franz-Josef Land, and Spitzbergen." (Seebohm *fide* Coues.) Passes south in the winter on the coasts of Asia and

northern Europe as far as Egypt. Possibly some of the birds from eastern North America, identified as *B. nigricans*, belong to this form.

BRANT GOOSE. WHITE-BELLIED BRANT. COMMON BRANT

(*Branta bernicla glaucogastra*)

Adult male and female — Head, neck, and upper part of breast, and back at base of neck, black; transverse streaks of white on each side of the middle of the neck; above, brownish gray, the feathers tipped with a paler shade; under parts, grayish white; anal region, pure white; middle of rump, dark brown; upper and under tail-coverts, white; tail, black; bill, legs, and feet, black; iris, brown.

Measurements — Length, 24 to 30 inches; wing, 13 inches; tarsus, 2.40 inches; culmen, 1.50 inches.

Young — Plumage similar to the adult, but with white bars across the wings. The white patch on the neck is less marked or absent entirely; under parts lighter.

Eggs — Four to six in number, grayish white, measure 2.70 by 1.80 inches.

Habitat — "Breeds only within the Arctic Circle." (Coues.) "In Arctic America, from the west coast of Greenland as far west as the Parry Islands, and north of latitude 73° as far as land is known to extend." (Seebohm *fide* Coues.) This bird has been said to breed on the coasts and islands of Hudson Bay, and the interior of Labrador, north to the Arctic Sea, and at Pointe des Monts, Quebec, but probably all are mistakes. Winters on the Atlantic Coast, from Massachusetts south to North Carolina, and rarely to Florida; is common on the St. Lawrence River in migration, but rare elsewhere in the interior, occurring west to Manitoba, Minnesota, South Dakota, Kansas, Colorado, Louisiana and Texas (?), and reported also from western New York, Ohio (?), Indiana, Illinois, Michigan, and Wisconsin. Occurs also in Great Britain, but less frequently than *B. bernicla*.

The breeding-ground of the brant is in the remote North, and the nest was first discovered by Mr. Feilden, June 21, 1875, in latitude 82° 33′. Subsequently, it has been found breeding abundantly on Parry Islands, the nests being numerous and in close proximity to each other. They were placed on the beach, well lined with down and feathers, and contained from three to four eggs. (B. B. & R.) About Bellot's Strait the birds were found nesting in the cliffs. The brant reach their breeding-grounds late in June, and soon pair off. The gander protects the nest in the absence of the goose. In July and early August the old birds moult, and at this time are killed in numbers by the natives, who salt them for winter use. With the first favorable winds in late September, the migration south begins. They arrive at the winter quarters, in the vicinity of the Chesapeake and the coast to the south, about the first of November, spending but little time en route. The birds are first seen on Long Island by the middle of October, and at this time show evidence of a long flight, being in poor flesh and ready to spend most of their time at rest. Off the North and South Carolina coasts, the brant gather in vast flocks, in calm weather remaining bedded in great numbers; they fly at intervals from one feeding-ground to another, the entire flock moving at once. The flight is in long, wavy lines,

one minute high up, the next just over the water's edge. This undulating character is unmistakable, and marks the birds afar. They keep in the open water, avoiding carefully the points of land and the bush blinds which are scattered through the bay, settling on the beds of eel grass that abound in these shallow sounds. They pluck it up in quantities, feeding at their leisure. While feeding, the body is kept above water, the bird dipping down with its neck. Brant have a peculiar fondness for sand, and their habit of frequenting the bars and beaches is known as "sanding." The noise from a large number is great, being a *ronk, ronk.* During windy or stormy weather the birds become uneasy and restless. The congregation breaks up into small flocks. String after string is seen following the same certain line of flight. Now they decoy readily. If on the point of passing by without noticing, a quick motion from the blind will often attract attention to the stool. One or two birds circle, and the flock swings in. A wounded bird is easily captured, as it does not dive, but skulks with the head out of water.

On Long Island, batteries, anchored in the line of flight and surrounded by a large number of decoys, are employed. Occasionally the birds lead within range of the smaller islands, though seldom flying over land.

On Cape Cod, brant are found in the spring and fall; they are shot from boxes sunk on the long sandy points, reaching out into the bay or on the bars. Live brant decoys are used if possible. Here the flight is regulated by the tides, so the time for shooting is short. During the last of the ebb and the first of the flow, the birds feed on the flats.

Sometime in April comes a pleasant day, warm and sunny, with a southwest wind. The several thousand brant in Chatham Bay feed greedily until the rising tide removes their food from reach. Now they assemble in deep water in the centre of the bay, study the weather, and discuss the advisability of journeying toward their summer home. Soon fifteen or twenty birds take wing, fly back and forth over the others, honking loudly, and circling ever higher until they have reached a considerable altitude; then the long line swings straight, headed northeast. Out over the beach, over the ocean it goes, and the birds in it will not be seen again. Then another flock follows, taking exactly the same course; flock after flock succeeds, and the movement is kept up until dark. You may sit in the blind next day or sail across the bay, you will see no brant save a few stragglers: branting is through for the year.

The line of flight from Cape Cod is to the islands in the Gulf of St. Lawrence, Prince

Edward's Island, Nova Scotia, and Newfoundland, the birds always keeping close to the coast. They arrive here during the last of April, and in May. On the Magdalen Islands at this time the lagoons are sometimes covered with brant. The natives shoot them from the bars when a heavy wind drives the flocks well in toward land, or by putting brush or seaweed in a small boat, drift or quietly paddle within range. Like all our water-fowl, brant are easily killed at night, swimming together in a close mass at the approach of a light. Under these circumstances the havoc caused is great; often ten or more birds are killed by a single shot.

They never breed in captivity, but become gentle and tame and are readily cared for. The flesh of the young bird is excellent; the old bird is rather tough for the table. The weight of the brant is from three to six pounds.

BLACK BRANT

(*Branta nigricans*)

Adult male and female — Head, neck, and upper parts of breast black. The middle of the neck has a pure white collar interrupted behind, with oblique white streaks running upward for an inch outside of the ring. Upper parts, breast, and abdomen, dark plumbeous. Sides of the rump, anal region, upper and under tail-coverts, snow-white. Tail black. Bill and feet, black. Iris, brown.

Measurements — Length, 25 inches; wing, 13 inches; culmen, 1.35 inches; tarsus, 2.50 inches.

Young — Similar to the adult, but the collar is obscure. The greater wing-coverts and secondaries, broadly tipped with white. The feathers of the sides, uniform gray, without white tips.

The black brant differs from the common brant in having a white collar about the front of the neck, in the latter bird the sides of the neck being merely streaked with white. The black brant is characterized also by darker breast and belly.

Eggs — Four to seven in number, grayish white, measure 2.80 by 1.80 inches.

Habitat — Breeds at Liverpool Bay on the Arctic Coast and at Point Barrow, Alaska, occurring abundantly in spring and rarely in fall on Kotzebue Sound and the Bering Sea coast of Alaska. Winters on the Pacific Coast from British Columbia south to Magdalena Bay, Lower California, in Nevada, and probably Utah. Recorded also as a straggler from Texas, Minnesota, Massachusetts, New York, New Jersey, and Virginia. Reported also from near Wrangell Land, Bering Island, and Hawaii, and a "dark-bellied" brant breeds in the Yenisei Delta. Occurs inland in migrations to Fort Yukon, Okanogan County, Washington, and eastern Oregon.

The black brant is rare on the Yukon, but passes the western edge of St. Michael's Island in immense flocks, about the middle of May, returning the last week in September.

Its breeding-ground is on the shores of the Arctic Ocean. Some of the nests are placed on small islands in the neighboring fresh-water ponds, or about the mouth of the rivers. The nest is a depression in the ground lined with down, containing four or five, sometimes six, eggs. These birds keep well to the sea, and except in the localities where they nest, are seldom seen on fresh water.

The salt-water bays along the coast, in the vicinity of San Diego and farther south, off southern and Lower California, are the winter homes of the black brant. North of San Diego the bird is less common, and probably the flight over a large part of the distance from Alaska south is over water.

The bird is killed from the sandy points and islands, in the lagoons and bays. The flight is on the ebb tide and for a short time, but the flocks come fast. Flying in undulating lines, close to the water, now high up, they first appear, a dark line in the far distance, steadily growing larger and blacker till they hover at the edge of the decoys.

The habits are similar to its eastern relative's. It feeds on various grasses and seaweeds, occasionally crustacea. When young the flesh is tender and palatable. The old birds are tough, and often have a fishy taste.

BARNACLE GOOSE

(*Branta leucopsis*)

Adult male and female — Lores, back of head, neck, and breast, black; remainder of head, nearly white; wings and back, slate, the feathers marked with a subterminal black bar, and a terminal one of white; flanks, brownish gray, feathers with white tips; under parts, grayish white; bill and feet, black; iris, dark brown.

Measurements — Length, 25 inches; wing, 15 inches; tarsus, 2.75 inches; culmen, 1.25 inches.

CANADA GEESE

Young — Cheeks, spotted with black; wing-coverts and feathers of back, tinged with rufous; flanks, barred with gray.

Habitat — Breeds in the northern part of the eastern hemisphere as far north as Spitzbergen. Winters in Great Britain and western Europe, occurring south to Spain. Occurs in Iceland and so regularly in Greenland that it has been thought to breed there, and it has been recorded on the North American continent from Hudson Bay, Nova Scotia (doubtless escaped from captivity), Vermont, Massachusetts, New York, and North Carolina.

The barnacle goose is only accidental in North America, and it is a matter of doubt if most of the specimens taken along our shores have not escaped from confinement. A barnacle goose, and the first one procured, was taken at Rupert House, on the southern end of Hudson Bay, by Mr. B. R. Ross, undoubtedly a straggler from Greenland. It has also been taken in Nova Scotia, Long Island, and Currituck Sound, North Carolina. This goose is about the size of a brant and is a handsomer bird than the other species. It passes much of its time on land and is specially noisy when feeding and on the wing. Little is known about the breeding habits, but the eggs are said to be of a yellowish cream color. Birds of this species have been known to live thirty-two years in captivity.

EMPEROR GOOSE

(*Philacte canagica*)

Adult male and female — Head and neck, white, stained, especially in front, with rusty; throat and neck frontally, brownish black or dusky gray; feathers on lower neck, tipped slightly with

white; the remainder of the plumage, blue-gray; each feather with a narrow terminal bar of white, and a broader subterminal bar of black; these markings are specially distinct on the upper parts, breast, and sides, but nearly wanting on the abdomen; greater coverts and secondaries, dark slate, edged with white; primaries with their coverts, slate; tail, at the base, slate, remainder, white; upper and lower tail-coverts, slate; bill, pale purplish; the lower mandible, dark horn-color, with a white spot on each side; legs and feet, orange; iris, hazel.

Measurements — Length, 26 inches; wing, from 14.50 to 15.50 inches; tarsus, 2.60 inches; culmen, 1.60 inches.

Young — Somewhat similar to the adult, with the head and neck slate color; top of the head, speckled with white; the barring of the feathers less distinct than in the adult; bill and feet, dusky.

Eggs — Five to eight in number, white, measure 3.35 by 2.12 inches.

Habitat — Breeds on the coast of Alaska from mouth of the Kuskokwin north to Kotzebue Sound. Winters chiefly on the Aleutian Islands, very rarely south to British Columbia and the Sacramento Valley, California, occurring on the Pribilofs in migration.

This bird is the most beautiful of our geese and outside of small localities in Alaska almost unknown. It breeds along the northern coast and adjacent islands. The nest is in a hollow depression on the shore, composed of grass and lined with down. The emperor goose remains in the North longer than any other species, staying until the whole coast is icebound, when it migrates south to open water, wintering about the coast and islands of southern Alaska. The flight is in pairs or in flocks of four or five, high in air and strong. The note is shrill and clear and the bird exceedingly

shy. In certain localities the eggs and flesh serve as an important article of food for the natives. The diet is composed of shellfish and crustacea. The flesh is strong, of a characteristic garlicky odor, and unsuitable for the table. A few specimens of this bird have been taken in California. Other names for the emperor goose are white-headed goose, Nudjarlik.

BLACK-BELLIED TREE-DUCK

(*Dendrocygna autumnalis*)

Adult male and female — Similar in plumage; forehead, pale yellowish brown, top of head, cinnamon; nape and line down back of neck, black; sides of head and upper part of neck, gray; chin and throat, grayish white; rest of neck, upper portion of breast, and back, cinnamon-brown; middle of back, rump, and upper tail-coverts, black; the wing, when closed, shows a white line for nearly its entire length; lower parts, yellowish brown; abdomen, flanks, and wing-coverts, black; anal region, white spotted with black; under tail-coverts, white; bill, orange-red at the base of maxilla, with a bluish nail; legs and feet, flesh color; iris, brown.

Measurements — Length, 22 inches; wing, 9.50 inches; culmen, 1.90 inches; tarsus, 2.25 inches.

Young — Similar to adult, but duller in color; abdomen and sides, grayish white, with dusky bars.

Downy young — Upper parts, blackish brown, with patches of buff on side of back and on each side of rump; a bright buff stripe over the cheeks and one from cheeks posteriorly, blackish brown; under parts, pale buff; belly, white.

Eggs — Twelve to sixteen in number, ivory-white, with greenish tinge, measure 2 inches by 1.50 inches.

Habitat — Ranges through Central America and Mexico, north to the lower Rio Grande River, in Texas, breeding throughout its range. A few are said to occur on the coast of Louisiana all the year, and it has been recorded from Jamaica and Fort Tejon, California.

This duck is common in Honduras and Trinidad, breeding in both these localities. In Texas it occurs near Matamoras and Monterey, and is met with near Galveston in winter. A single specimen taken at Fort Tejon, southern California, is the only instance of its capture in this state. The black-bellied tree-duck breeds generally throughout its range, choosing a hole in a tree or broken stump, often a mile or more from water, as the site for its nest. This is sometimes placed thirty feet or more from the ground, a second and third brood in some instances being raised. In April, 1901, I found these birds abundant in the vicinity of Tampico, Mexico. They were most often seen in small flocks of from four to ten on the banks at the edge of the lagoon. Their long legs gave them an odd look. At our approach they would run together, raising their long necks much like geese. The flight was peculiar and characteristic, low down and in a line, their large wings with white bands presenting a striking aspect, and giving the impression of a much larger bird. We saw them occasionally on the smaller ponds, and shot several, all of them males. In one or two instances the appearance of the breast indicated the bird had been sitting on eggs. While the males of this species are supposed to attend to their own affairs during the period of incubation, it would seem as if they

occasionally assisted in nesting duties. Once or twice I saw them near small ponds in woods apparently nesting, flying from tree to tree with perfect ease, exhibiting some concern at our presence.

Both varieties of tree-ducks are nocturnal in their habits, and fond of visiting the corn-fields, where they often inflict much damage by alighting on the stalk and breaking it. The note is a shrill *pe-che-che-ne*, and hence the native name. They are readily tamed, and become very gentle. We noticed a pair in one of the yards at Tampico perfectly at home with the barnyard ducks. When domesticated, they are said to be as good as a watch-dog, uttering their note at slight provocation. This bird is known along the lower Rio Grande as the long-legged duck and the fiddler duck; in Mexico as the pe-che-che-ne and the pato maizal, or corn-field duck.

FULVOUS TREE-DUCK

(*Dendrocygna fulva*)

Adult male and female — Similar in plumage; top of head, rufous, darkest on nape; sides of head, yellowish brown; a ring of black feathers with white centres on middle of neck; lower neck, dark yellowish brown; back, black tipped with cinnamon, giving it a barred appearance; wing-coverts, chestnut; wing, black; tail, black; upper and under tail-coverts, white; throat, light buff; upper parts of breast, yellowish brown; under parts, cinnamon; bill, bluish black; legs and feet, slate; iris, brown.

Measurements — Length, 20 inches; wing, 8.25 inches; culmen, 1.75 inches; tarsus, 2 inches.

Young — Similar to adult, but with little or no chestnut color on wing-coverts; under parts, paler; the upper tail-coverts tipped with brown.

Downy young — Upper parts, grayish brown; a brown band from the eyes to the back of neck; another extending down the neck, posteriorly; a white band across the back to the head, and one across the wing; under parts, white.

Eggs — Ten to fifteen in number, pure white, measure 2.20 inches by 1.50.

Habitat — In the United States, breeds in Louisiana, Texas, and the Sacramento Valley, California; occurs in Nevada, southern and Lower California in migrations, and winters in Louisiana and Texas. Is found also in Mexico and in southern Brazil, Uruguay, and Argentina, in South America, and is said to occur in South Africa and India. Recorded also from North Carolina and Missouri.

Mr. Hepburn found the fulvous tree-duck breeding on the marshes at the junction of the Sacramento and San Joaquin rivers. A specimen killed near San Francisco is in the Museum of the Boston Natural History Society. There is a single instance of its capture near New Orleans, January 22, 1870. In South America it has been noticed in the easterly region of La Plata and on the Rio Uruguay. In October, at the end of the rainy season, it is abundant near Mazatlan.

The fulvous tree-duck inhabits a region near the seacoast, but is found exclusively on fresh water, through the winter ranging well into the tropics. It frequents shallow, grassy ponds, feeding on seeds and various weeds, often going at night to

the corn-fields. The bird is comparatively easy of approach, and sometimes many are killed at a shot. In April they migrate north a short distance, and breed along the rivers in western Sonora, passing in limited numbers into the United States. The nest is a hole in a tree, and the eggs twelve to fifteen in number, the duck sometimes raising two or three broods. The note of this bird is a peculiar whistle, often heard at night, which is its favorite time for feeding. The flesh is white, juicy, and excellent for the table. Alighting on a tree, the long legs give them an ungainly look. When fledged, the birds congregate in considerable size on neighboring ponds, often gathering along the shore. The species is known by various names, such as long-legged duck, yellow-bellied fiddler duck, and rufous duck.

CHAPTER VI

THE SWANS

(*Cygninæ*)

This group contains the largest of the waterfowl. There are about eight species scattered over the world, but the majority belong in the northern hemisphere. Swans, while possessing a bill much like that of a duck, but rather longer proportionately, differ from all other birds of the family in having in adult life a space between the eyes and bill bare of feathers. The neck is exceedingly long, longer than the body, and contains more vertebræ than that of the geese and ducks, and is therefore extremely flexible. The legs are rather short and set far back, so that the grace that is characteristic of the swan in water disappears when it tries to walk. The hind toe has no membranous lobe or a very small one. The sexes are alike in color, and the plumage of the adults in all the species frequenting the northern hemisphere is pure white. They prefer the temperate regions of the globe; but the majority of individuals, still existing wild in the northern hemisphere, now breed far north. They are seldom found in large

flocks and prefer the shallow waters of the lakes and rivers, but occur also in the bays of the coast. Although very rapid swimmers they do not dive, feeding chiefly on water plants, which they tear up from the bottom, reaching down their long necks, sometimes tilting the body like a goose; occasionally they eat shellfish. The flesh of the adults is said to be tough and not palatable, that of the young being far better. They migrate in V-shaped flocks, frequently uttering loud trumpeting. Their flight is strong, but an instance is on record that a flock of whistling swans (*Olor columbianus*) while migrating through western Pennsylvania were overtaken by a storm of sleet, and their feathers so loaded with ice that they were forced to the ground and a number caught alive.

In breeding habits they resemble the geese. Retiring to an island in some secluded lake or the fastnesses of a marsh, they build a large nest of sticks, leaves, and grass. The male guards the female while she is sitting, attacking with great courage whatever approaches the nest. Their voice is clear and powerful, but the sweetness of "the dying swan's refrain" must be considered poetical license.

Swans are frequently kept in captivity and breed readily if they have surroundings to their liking. The mute swan is the one most often

seen in parks and zoölogical gardens, and is not a native of North America. It is an exceedingly beautiful bird as it floats on the water, carrying its long neck in a graceful curve. The age to which swans live is very great. The mute swan has been known to reach seventy years, and one died near Amsterdam, in 1675, which bore a metal collar with the date "1573," indicating a life of one hundred and two years.

While all swans of the northern hemisphere are white, so that "white as a swan" became proverbial, in Australia — the land of all things strange — was found a black swan. This is a very beautiful species, entirely black, with a red bill crossed by a white bar. The neck is long, slender, and very graceful, and the inner feathers of the wings are curled and raised. It has been successfully domesticated in the northern hemisphere.

Another peculiar swan is found in southern South America, sometimes occurring in large flocks. This bird is pure white except for the head and neck, which are deep seal-brown. The bill is plumbeous with a rose-colored knob at the base. "Boleadores," — three balls on the ends of connecting ropes, — such as are used to catch horses and cattle, were formerly employed by the inhabitants to catch these swans, although for this purpose the balls were made of wood. The

hunter would float as close as possible to a flock feeding in some lake and throw the balls as the birds arose. If he succeeded in striking one, these balls, twisting the ropes about the bird, rendered it helpless.

WHISTLING SWAN

(*Olor columbianus*)

Adult male — Entire plumage, white; the head, sometimes the neck and under parts, tinged with rusty; tail, generally of twenty feathers; bill and feet, black; iris, brown; a small, yellow spot on loral skin at the base of the bill, in front of the eye; the distance from the anterior corner of the eye to the posterior edge of the nostril is more than the distance from the posterior edge of the nostril to the tip of the bill. This is an infallible distinction from the trumpeter swan (Cory).

Measurements — Length, 53 inches; wing, 21.50 inches; bill, 4 inches; tarsus, 4.25 inches; middle toe, 5.75 inches.

Adult female — Similar.

Young — Plumage, of a grayish cast, with a brownish tinge on head and upper neck; bill, reddish flesh color, dusky at the tip; feet, pale yellow. The adult plumage is acquired in about five years, during which time the plumage gradually shades into white, and the bill and feet grow darker until the fourth year, when both become black. Weight, sixteen to twenty-four pounds.

Eggs — Two to six in number; brownish white; a rough surface to the shell; measures 4.10 by 2.70 inches.

Habitat — Breeds on Nottingham Island, Hudson Bay, the Arctic Coast near Fort Anderson, near Kotzebue Sound (Sp. ?), the Yukon Delta, and Cook Inlet (Sp. ?), Alaska, and is said to be abundant in summer in the interior of British Columbia. Winters from Maryland to South Carolina on the Atlantic Coast, rarely north to Massachusetts and south to Florida, on the coast of Louisiana and Texas, north rarely in the interior to western Pennsylvania, Ohio (?), Indiana, Illinois, Michigan, and Nebraska (Sp. ?), in Utah and Nevada (Sp. ?), Arizona, and on the Pacific Coast from British Columbia, rarely south to Ventura

County, California, and San Raphael, Lower California (Sp. ?). Occurs in migration from the Commander and Pribilof islands to Newfoundland, and has been taken in Scotland and Bermuda.

The whistling-swan reaches the breeding-grounds in late April or early May, arriving in flocks, most of which cross the interior; some follow the line of Hudson Bay, others the Pacific Coast. Soon after their appearance at the summer home, the flocks break up into pairs, each pair frequenting the nesting-place, usually a small island. Captain Lyon has described the nest as being built of moss peat, and as being of considerable size, the length at the base being nearly six feet by four in width, in the shape of a mound, with an outside height of two feet, the cavity being a foot and a half in diameter.

The young are hatched about July 1, and before they are able to fly many fall a prey to the natives. The fall migration begins in early October. Families congregate in flocks and when a favorable wind offers, start on the journey south. The flight is mainly overland, in a straight, unerring line, high in the air, and in fair weather with but few stops. Those wintering along the Atlantic reach the coasts of North and South Carolina in early November and remain until well on into March. On the Columbia River the birds arrive in late October and leave in March or the first week of April. The first comers are in

small flocks, composed of a few old birds with their cygnets; these are augmented by others, and soon large numbers congregate. Their destination is often reached at night; discordant cries announce the arrival and tell the satisfaction of a long, tiresome journey ended. Few sights are more imposing than the lines of white, and the swan drifting majestically along the surface of quiet water is deservedly the emblem of beauty and grace. From afar the appearance is of a snowbank. If disturbed, and not hard-pressed, they swim off rather than take to wing. The flight is started with considerable effort; the bird rising heavily against the wind quickly mounts to an altitude far out of range, when the wings seem almost motionless and the white line sails through the air in striking distinction to the flapping flight of geese. The note resembles slightly the noise made by a tin horn, and its discordance is supposed to increase with age. When birds in the air, about to alight, call to those on the water, there is often an utter din.

The swan feeds on the shallow bars and flats, keeping the body above water and dipping down with its long neck. Various water-grasses, vegetable matter, and small shellfish and crustacea comprise the diet. While age and resulting toughness render the old bird scarcely edible, the cygnet in some localities is highly prized.

In Currituck, Albemarle, and Pamlico sounds, the eastern habitat, the swan is not killed in large numbers. When an occasional bird is shot, perhaps he is an unfortunate tail-ender, who came over the blind a little too close. Sometimes in heavy weather the usual course and habit of flight is changed, and the flocks fly overland within range. Rarely a single bird comes to geese decoys. Some of the clubs along the coast have one or two wild swan, that are tied out with other stool and serve to attract their mates.

Along the Pacific Coast, in the vicinity of the Columbia River, the bird is killed in considerable numbers when driven low down and overland by storm and wind. In winter weather a boat covered with ice, if skilfully managed, can often be paddled within close range. The difficulty with which a swan rises from the water enables it rarely to be sailed on. Heavy loads behind heavy shot are necessary to kill, and if possible the head or neck should be aimed at. When wounded the swan often escapes, for it is a powerful swimmer, and, if opportunity affords, can dive and skulk. If approached without caution, it can deal a heavy blow with the wings. This bird bears domestication well, and lives to an old age.

TRUMPETER SWAN

(*Olor buccinator*)

Adult male — Plumage entirely white, the head, sometimes the neck and lower part, tinged with rusty; tail usually of twenty-four feathers; bill, lores, legs, and feet, black; iris, brown.

Measurements — Length, 63 to 68 inches; wing, 24.25 inches; tarsus, 4.75 inches; culmen, 4.50 inches; weight, twenty to thirty-four pounds.

Adult female — Similar.

The young — Plumage, grayish; bill, black with the middle portion light flesh color and a patch of light purple on each side; the edge of the lower mandible and tongue, yellowish; feet, yellowish brown; webs, dusky.

This species differs from the preceding in size, it being decidedly the larger bird. No yellow spot on the lores. The distance from the anterior angle of the eye to the posterior of the nostril is equal to or less than the distance from the posterior edge of the nostril to the edge of the bill. (Cory.)

Eggs — Two to six in number, dirty white, the shell rough, measure 4.50 by 2.70 inches.

Habitat — Breeds at Fort Yukon, Alaska, and from islands of Franklin Bay and the Barren Grounds, south to Hudson Bay and Wyoming, and formerly south to Indiana, Minnesota, Iowa, Nebraska, and Idaho. Winters from British Columbia (?) and Washington, south to Los Angeles County, California, in Nevada (Sp. ?), Arizona, and on the Gulf Coast of Texas, Louisiana, and northern Mexico, rarely north to Illinois, Indiana (?), and Ohio. Has been recorded very rarely from Michigan, Ontario, New York, and Maryland, in migration, most passing west of the Mississippi; and in Norton Sound, Alaska; is becoming each year more rare in the United States. Recorded from England.

This bird is an early arrival in the United States, appearing along the northern border by the middle of September. By the end of October it is seen in some numbers along the

upper Mississippi Valley and the lower waters of the Ohio. Here it remains until freezing weather, wintering occasionally in Texas and along the Gulf, and found commonly in New Mexico and northern Mexico. The favorite haunts are small, fresh-water lakes, where the bird is seen in small flocks or in pairs.

They breed in large numbers on the fresh-water ponds and lakes in the vicinity of Hudson Bay. The nest is placed on the islands or low ground among the reeds and is composed of grass. The bird hatches in July and takes its young to the neighboring water. During the moulting season, in August, it is for a short time unable to fly.

The habits of the trumpeter swan resemble those of its relative, but its note is different, being much more sonorous. It is a strong, high flyer and difficult to kill, the wounded birds swimming with rapidity and often eluding capture. The food consists of water-grasses and vegetable matter, sometimes small shellfish, the bird feeding in shallow water, with the body above the surface. The flesh of the young bird is excellent.

This swan is the largest representative of our water-fowl, and undoubtedly attains great age. There are instances on record where it has lived many years in confinement. If taken young, it becomes remarkably tame, and has been domesticated successfully in various places throughout this country.

WHOOPING SWAN

(*Olor cygnus*)

Adult male and female — Entire plumage, white; base of bill surrounding the nostrils and lores, yellow, the remainder, black; legs and feet, black.

Measurements — Length, 57 inches; wing, 24 inches; tarsus, 4 inches; culmen, 4.30 inches.

Young — General color, dark gray; base of bill and lores, greenish yellow; remainder, black, with an orange band across the nostrils.

Eggs — Four to seven in number, yellowish white in color, measure 4 inches by 2.50 inches.

Habitat — Breeds in the northern parts of Europe and Asia, including Iceland, and is said to have formerly bred in Greenland. Winters on Bering Island (?), the Caspian Sea, and in Great Britain and Europe as far south as Egypt. Occurs occasionally in southern Greenland.

Formerly this species bred in Greenland, near Godthaab, but was exterminated by the Eskimos, when moulting and helpless. During the past thirty years single individuals have occasionally reappeared in southern Greenland, probably mere stragglers from Iceland, where the bird breeds.

On some hillock in a retired marsh of Iceland or northern Eurasia the whooping swan heaps together rushes to form its nest. Simple as is such a home, it must be dear to the birds, for it is said that a pair will return to the same nest for years. Both parents guard their young bravely, attacking all who approach. At other times they are wary, and as the V-shaped flocks pass they trumpet frequently.

CHAPTER VII

RAIL-SHOOTING

When the wild oats along the tidal rivers of our coast begin to turn yellow with the first touch of fall, the time for rail has come, and the high tides of September give the sportsman his first chance. The Connecticut River, where it broadens into the Sound, is one of the favorite haunts of these birds. Here Essex is the usual destination. Some three miles up the river from Saybrook, the little town of Essex, with its one hotel and old-fashioned houses, looks now pretty much as it did a hundred years ago. Rail tides generally come toward the middle of the day, and the pusher is waiting for you at the landing; you stand for a minute looking up and down the broad expanse of river. Everywhere along the shore are wavy patches of high grass reaching far out into the water. These are the wild oats, and here live the rail. A strong tide is running in, and you step into the flat-bottomed skiff, which is rigged with a high stool firmly tied to the front seat. The only task now is to sit still on this stool and be shoved. A short row up the river and

you are in the midst of thick wild oats, so high it is difficult in many places to see over the tops, even from your exalted position. A flutter just ahead, and a rail rises, shot almost before it cleared the grass; a few feathers alone are left to tell the fate of the first bird of the season. The next is given a chance to get in range, and the score is two; three or four more straight exalt a man's idea of his shooting ability, — without reason, though, for no easier mark ever flew in front of a gun. Now a rail runs among some broken grass ahead of the boat, and a whack from the pusher's pole starts him; at the shot half a dozen teal jump within range, and the last one is feathered but not stopped. Presently several rail start in quick succession; you fire, and load, and fire again, — not a miss yet, but all idea of definite direction is lost and the last bird is the only one marked. Here a clever pusher shows his skill, and after you have given up all thought of retrieving he picks them up in order. Under these circumstances painted blocks can be used and tossed out to mark the dead birds before the position of the boat is changed. The time of high tide is short, but sufficient; every few seconds a bird rises, its slow flight affording a sure mark; generally in front or to the side, occasionally behind, when you are startled by the pusher's yell "Hi, rail!" in time to try a long shot. Sometimes a larger bird, of the

same general appearance and similar flight, starts up. This is a clapper rail, known by many of our gunners as marsh hen. About Essex they are rare. Sometimes, too, a mud hen flops out over the tops. In some instances mud hens are quite common on the rail grounds. The Florida gallinule is also a straggler here. Rail keep fluttering from the grass, less often now, though, than an hour ago, but you have some time since reached the limit, — as well, for a falling tide makes the pushing hard and the birds refuse to rise. Most of the birds are soras; occasionally the longer bill and darker coloring mark a Virginian rail. An occasional chattering note tells of the presence of a rail, secure in the high grass, until the next high tide. A lone bittern wings his way to some safer spot, and this is our last glimpse of the marsh.

THE RAIL FAMILY

(*Rallidæ*)

This family contains about one hundred and eighty species of small or medium-sized birds. They are scattered over most of the world, but are more common in the tropics; and three subfamilies, — the rails (Rallinæ), Gallinules (Gallinulinæ), and coots (Fulicinæ), — containing fifteen or sixteen species, are found in North America. All have long and strong legs, with very powerful thighs; the toes are usually very long and not

webbed, and the bodies narrow. This combination of characters enables them to run rapidly and with ease over the soft mud of the marshes they frequent, or on the broad leaves of water-plants, and also to pass without difficulty among the thickly growing reeds and grasses. Their wings are short, rounded, and somewhat hollow, so that their flight is usually feeble and but for a short distance, with the long legs hanging. Few of them fly willingly, preferring to trust to their powerful legs and their great skill in hiding among the thick growth around them, than to their feeble wings. Some of them carry this disinclination so far as to allow themselves to be caught by a dog rather than leave the ground. The flight of the clapper rail is so feeble that I have frequently seen a Chesapeake Bay dog, having finally succeeded in driving one from cover, follow it as it flew and catch it soon after it struck the ground, although it might have flown over one hundred yards. Yet some species migrate long distances, accomplishing these journeys at night.

There are seldom striking contrasts in the colors of the plumage of the rails, and the feathers themselves are rather loose, and the tail short and soft. The males and females are usually alike. Their food, gathered amongst the rushes, on the mud or in the water, may be either seeds, grasses, and the buds and stems of water-plants, or small

fish, crustaceans, and shellfish. The flesh of certain species is considered a delicacy. The size and shape of the bill differ much in the different subfamilies, but it is never soft at the tip. The hind toe is much longer than in the ducks and shore-birds. All the species are retiring in their habits, keeping in dense vegetation, and though their harsh notes may show that there are many around, seeing a single bird will prove often impossible. Evenings and moonlight nights are their favorite feeding hours, and then their loud voices can be often heard in the marshes they frequent, and occasionally a bird seen running on the mud at the edge of a creek. Their nests are simple, a hollowed heap of short rushes, and are built on the ground or fastened among the reeds growing in shallow water. The eggs are usually buffy, spotted with brownish, and from six to fifteen in number. The young leave the nest as soon as hatched.

The coots may be recognized by a bare and horny shield-like space, extending from the bill toward the crown, and by the membranous lobes on their toes; the gallinules, by a somewhat similar frontal plate with no lobes on the toes; and the true rails, by having neither frontal plate nor lobed toes. Some of the gallinules are of a rich purple color with brightly colored bills.

On islands in the southern hemisphere sev-

eral species of this family have been discovered that have lost the power of flight. These birds inhabited, as a rule, small and isolated islands, on which they had few natural enemies and therefore little need for wings; but civilized man interfered with the prevailing order when he intruded on their domains, and now some of these birds have been entirely exterminated and others are on the verge. They were seldom shy or wary birds and sometimes possessed an inordinate curiosity. A description of the manner in which a species that lived in Mauritius in 1675 was caught, is quoted by Dr. Stejneger in the "Standard Natural History": "A rod is taken in the right hand and the left is wrapped in a piece of red stuff, which is then shown to the birds, commonly assembled in numerous flocks. Whether the red color terrifies these stupid birds, or whether it attracts them, they approach the fowler almost without fear; and he, when they are at a convenient distance, strikes and seizes one. The cries which the captive utters attract its companions, who seek to deliver it, and thus all become the prey of the fowler." Let us be thankful that the presence of enemies has kept our rails from a similar mental and physical condition.

KING RAIL

(*Rallus elegans*)

Adult male and female — Upper parts, olive-drab distinctly striped with black; top of head, dark brown with a supra-loral streak of brownish white; lores, brownish gray; throat, white; remainder of head and neck, including jugulum and breast, light cinnamon; sides, dark brown barred with white; lower abdomen, light buff, sometimes white; wing-coverts, rusty brown, more or less barred with reddish white; lower mandible and edges of the upper, yellowish; ridge of upper and tips of both, brown; iris, red; feet, olive-brown.

Downy young — Uniform black; bill, dusky; the tip and band near face, yellowish; feet, brownish.

Measurements — Length, 17 inches; wing, 6.50 inches; culmen, 2.25 inches; tarsus, 2.30 inches; middle toe, 2 inches. Individual measurements vary considerably.

Eggs — Nine to twelve in number, creamy white in color, marked with small spots and blotches of purplish slate, measure 1.70 by 1.25 inches.

Habitat — Fresh-water marshes of the eastern United States, west to Texas and Kansas; breeding from its southern limit north regularly to New Jersey, New York, Ohio, Indiana, Ontario, Michigan, Nebraska, and probably Minnesota, and occurring irregularly to Maine, New Brunswick, South Dakota, and possibly Manitoba and Utah. Winters chiefly in the southern half of its range, north occasionally to Rhode Island, Massachusetts, and southern Illinois. Accidental in Cuba.

Fresh-water marshes of the Southern and Middle states are the common resorts of the king rail, and thence it straggles to the northern border of the United States and has been taken in Canada. In South Carolina, Georgia, Florida, and Texas, this bird is a resident throughout the year, but its secretive habits, and the protective nature of the

SHOOTING YELLOWLEGS ON LONG ISLAND

haunts, make it difficult to secure. The king rail breeds in the marshes it frequents, building a nest of withered reeds and grasses to a height of six inches or more from the ground. Eight to ten eggs are laid, and in the South incubation is begun early in April. The birds are said to use the same nests year after year. The young when first hatched are covered with black down, and closely resemble little rats. Where there are extensive marshes near sluggish streams, occasionally a glimpse is caught of this bird, but the slightest motion causes it to dart out of sight. The food consists of various seeds, small water animals, tadpoles, crayfish, etc., and the flesh is not the equal of the smaller rail. Some confusion has always existed between this species and the clapper rail, not only among sportsmen but also ornithologists. The king rail is seldom taken on salt-water marshes, and the birds called king rails by gunners in these localities are in the great majority of instances the clapper rail.

BELDING'S RAIL

(*Rallus beldingi*)

Similar to *R. elegans*, but darker and richer in its plumage; the white bars on the flanks are much narrower, and the sides are marked with distinct black bars; basal two-thirds of the mandible, deep orange; rest of bill, dark brown; feet, dark brown.

Measurements — Length, 15 inches; wing, 5.75 inches; tail, 2.50 inches; culmen, 2 inches; tarsus, 1.85 inches.

Habitat — The coast and islands of southern Lower California.

Since this bird was first described by Mr. Ridgeway in 1882, additional specimens agreeing closely with the original type have been secured, thus establishing the species. It resembles closely, in the coloring of its plumage, the Virginia rail, but is considerably larger, and it is difficult to tell to which variety the Belding's rail is most closely related.

CALIFORNIA CLAPPER RAIL

(*Rallus obsoletus*)

Adult male and female — Upper parts, olivaceous, marked with distinct dusky stripes; breast and under parts, cinnamon color; general plumage closely similar to *R. elegans*. The coloring and marking of the flanks resemble *R. crepitans*.

Downy young — Similar to *R. elegans*.

Measurements — Length, 17 inches; wing, 6.50 inches; culmen, 2.50 inches; tarsus, 2.25 inches.

Eggs — Six to twelve in number, light buff, spotted with reddish brown and lavender, measure 1.70 by 1.25 inches.

Habitat — The salt marshes of the Pacific coast from San Quentin Bay, Lower California, north to San Francisco, and possibly to Washington.

Little is known about any distinctive habits of this species. It frequents the salt marshes and marshy islands of California, and resembles in manners the common clapper rail.

Mr. Joseph Grinnell, in his "Check-list of California Birds," confines this species to the marshes of San Francisco Bay, north, possibly, to Humboldt Bay, and recognizes *Rallus levipes* as the form inhabiting the salt marshes of southern

California from Santa Barbara to Newport Bay. *Rallus levipes* is described by Mr. Outram Bangs (Proc. New Eng. Zool. Club, I, 43, 1899) as smaller than either *R. obsoletus* or *R. beldingi*, with a more slender bill, and a smaller tarsus and foot. It is darker above than *R. obsoletus*, the breast and sides a deep cinnamon-rufous, the ground-color of the flanks darker, and the superciliary stripe white, instead of rusty. From *R. beldingi* it differs in having the back feathers more streaked, the breast less of a salmon-color, the flanks browner, with the white broader, and the superciliary stripe white, instead of rusty.

CLAPPER RAIL

(*Rallus crepitans*)

Adult male and female — Upper parts, olive, sometimes uniform, rarely striped with dusky; the feathers of back and scapulars margined with gray; top of head, dusky, with a brownish white supra-loral stripe; side of head, gray; chin and throat, white; rest of neck and breast, pale cinnamon-buff; flanks, olive-gray, barred with white; wing-coverts, brown; lower mandible and edges of upper, yellowish brown; upper portion, deep brown; iris, yellow; feet, grayish.

Downy young — Similar to *R. elegans*.

Measurements — Length, 15 inches; wing, 5.50 inches; culmen, 2.25 inches; tarsus, 2 inches.

Eggs — Seven to fifteen, deep cream color with numerous markings of dark purplish brown, measure 1.65 by 1.18 inches.

Habitat — Salt marshes of the Atlantic and Gulf coasts of the United States, breeding from Louisiana north to Connecticut and probably Massachusetts. Occurs irregularly in Maine, and has been reported from Springfield, Massachusetts, Vermont,

western New York (?), Pennsylvania and Washington, D.C. Winters from New Jersey regularly, Massachusetts rarely, south to the Bahamas.

Four subspecies of clapper rails are recognized by the American Ornithologists' Union. All inhabit salt marshes along the coast.

No. 1. Clapper Rail (*Rallus crepitans*). Described above. Inhabits the Atlantic Coast from North Carolina to Connecticut, and rarely Maine; resident from New Jersey south, and is said to breed also on the coast of Louisiana and western Florida.

No. 2. Wayne's Clapper Rail (*Rallus crepitans waynei*). Similar to last, but with the general coloring darker, the contrast between the dark centres and light edgings on the feathers of the upper parts, more pronounced — the centres of dorsal feathers rich seal-brown and their edges light ashy, the under parts with more ashy, and the under tail-coverts with fewer markings. Inhabits the Atlantic Coast from North Carolina to Florida.

No. 3. Florida Clapper Rail (*Rallus crepitans scottii*). Similar to last but still darker, the upper parts sooty brown or black, edged with olive-gray. Under parts dark ashy gray mixed more or less with cinnamon. Inhabits the Gulf Coast of Florida.

No. 4. Louisiana Clapper Rail (*Rallus crepitans saturatus*). Similar to last but browner. Upper parts chiefly rich brown edged with olive. Under parts gray with cinnamon breast. Inhabits the coast of Louisiana.

The salt-water marshes of the more southern portions of the United States and the Gulf of Mexico are the homes of the clapper rail. It is rare north of Long Island. The bays and tidal rivers of Virginia and North and South Carolina are their resorts, and here the loud cackling note, morning and evening, in certain seasons, is one of the sounds of the marsh. Early in April the

birds are in evidence in their Virginia haunts, and a little while later in New Jersey and Delaware. When shore-bird shooting on Broadwater Bay, Virginia, there were few places on the marshes where the clattering cry of the clapper rail did not protest against intrusion. The meadow-hens (for this is their common name) would often come close to the blind, if long grass afforded protection, keeping up their din, a single rail making as much racket as a guinea-hen. Now it seemed close at hand; if something was thrown into the cover, for a second there was silence, then redoubled noise, and yet not a bird could be flushed. When high water covered their retreats, I started a few from the flooded marshes. They rose then with hesitation, the flight being straight away and slow, the birds dropping down at the first opportunity. In places, where from their noise on previous occasions I would have sworn to a hundred, only a few were in evidence. I noticed them not infrequently swimming through the thin grass, with hardly more than head and neck showing, much like the manner of a grebe. Sometimes they would dive and swim a short distance under water. Exposed under these circumstances the note was never uttered. Their nesting-places in the marshes were often covered by the tide. It was a matter of great interest to me to ascertain whether the eggs were destroyed, and I am con-

vinced the ordinary high water, unless associated with the heaviest storm, does no injury, although in some instances devoted birds have been found drowned in their nests. The eggs, unfortunately, in locations where they abound, are greedily sought for by the natives and held in highest esteem, but now like all good things have become scarce. Wilson states the nests were so abundant he has known twelve hundred eggs to be gathered by one man in a day, — an instance of past destruction that now seems incredible. The nest is simple but carefully constructed, being woven over with twisted, plaited grass, likely a provision against high water; a little path generally leads to it, and this the egg-hunter looks for. The eggs are eight to ten in number, and often a second set is hatched. In the late summer clapper rail are hunted from the marshes of the South from skiffs, poled through the flooded grass, and often large numbers are killed. Their flesh is not as excellent as that of the sora rail, as their diet consists more of various small shellfish and animal matter, than of seeds and vegetable material.

Where the grass is not too thick a quick dog will often catch them. In one instance I knew a dog to flush one repeatedly, finally driving the bewildered bird to the open, where it flew on to the beach so hard as to turn completely over.

CARIBBEAN CLAPPER RAIL

(*Rallus longirostris caribæus*)

Adult male and female — Similar to *R. crepitans* in coloring, but bill very long, slender, and much decurved.

Measurements — Wing, 5.75 inches; bill, 2.40 inches; tarsus, 1.85 inches.

Eggs — Five to fifteen in number, white to brownish buff, spotted with rusty brown and purplish gray.

Habitat — West Indies and the Gulf Coast of Mexico, north to Texas.

This bird resembles the clapper rail in habits, and is only found in the United States on the coast of Texas, where it occurs north to Corpus Christi and Galveston.

They are said to be very abundant in the swamps on the coast of Jamaica, keeping carefully out of sight, their presence usually disclosed only by the harsh *crek* which they frequently utter. Late in the evening and at dawn they are very noisy, and then come to the small openings in the marshes to feed. They breed on the ground among the roots of the mangroves, forming a large nest of roots and leaves, hundreds often nesting in a single swamp. The eggs are from five to eleven in number. From its habits this bird is known as the mangrove-hen.

VIRGINIA RAIL

(*Rallus virginianus*)

Adult male and female — Similar to *R. elegans* but more deeply colored. Above, olive, deeply striped with black; wing-coverts, rufous; remainder of upper parts, dusky; top of head and back

of neck, dusky, slightly streaked with olive; a brownish white supraloral stripe; side of head, plumbeous; fore neck, breast, sides, and abdomen, cinnamon; flanks dusky, barred with white; bill, orange-red, marked with brown in front of the nostril and on base of mandible.

Young — Head above and laterally, back anteriorly, rump, breast, and sides, dull black; wing-coverts and wings, similar to adult; throat white, finely spotted with black; lower breast and abdomen with a few feathers on sides tinged with white; anal region, reddish.

Downy young — Glossy black; bill, orange-red, slightly marked with blackish.

Measurements — Length, 7.50 inches; wing, 4 inches; culmen, 1.50 inches; tarsus, 1.30 inches.

Eggs — Six to twelve in number, creamy white, marked with small blotches and spots of brownish red, measure 1.28 by .95 inches.

Habitat — Breeds from New Jersey, Pennsylvania, probably Virginia and North Carolina, Ohio, Indiana, Illinois, Iowa, Kansas, Colorado, Utah, California, and possibly Nevada and Lower California north to New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, and British Columbia, and recorded from Nova Scotia, Newfoundland, Hamilton Inlet, Labrador, and York Factory, Hudson Bay. Winters from Massachusetts rarely, South Carolina regularly, the southern Mississippi states, Colorado, Utah, Washington, and British Columbia, south to Florida, Guatemala, and Lower California. Reported also from Cuba, Bermuda, and five hundred miles west of Ireland.

The Virginia rail is almost a miniature of the king rail and resembles this bird in habits. It is most abundant on the fresh-water marshes of the Western states, especially Michigan, Wisconsin, and Illinois, occurring in large numbers in western Canada. In the favorite resorts of the sora, this species only occurs sparingly. It seems to prefer the marshes less affected by tides where it

can depend entirely on its legs to effect escape, and a quick dog has difficulty in forcing the bird to flight. The Virginia rail flies with feet hanging down and quickly takes to cover, where it darts off, running with tail erect. The food consists of various water insects and animalculæ, and the flesh is not as highly prized as that of the Carolina. The note is described as a *keek-keek*, and is almost a squeak, this uttered particularly at times when the bird is distressed, when the nest is approached. It is found in the more northern haunts late in April, and at this time the birds sometimes straggle into the markets. In May they breed on the fresh-water marshes of the interior, and to a less extent on the coast, constructing a nest of grass, often placing it at the bottom of a tuft, roughly arching the top. The eggs are eight to ten in number and large for the size of the bird. The young are covered with black down with a white spot on the bill, and utter a faint peep if disturbed. In New England I have found this rail most common early in August, and frequently flushed them from the short grass of the meadows, while looking for yellow legs. Undoubtedly their habits have much to do with the apparent scarcity of the species. From its disposition to keep to the fresh-water marshes, this rail often goes by the name of fresh-water marsh-hen. Early frosts

mark the limit of their stay in the north, though a few remain until winter. The distribution of this variety is extensive, from the Atlantic to the Pacific, and from Florida to southern Canada.

SPOTTED CRAKE

(*Porzana porzana*)

Adult male and female — Upper parts olive-brown, striped with black; broad line above eye, malar region, chin, and throat, uniform gray; ear-coverts, neck, and chest, light hair brown, spotted with white.

Young — Similar, with the stripe above the eye spotted with white; malar regions, chin and throat, white, spotted with brown; the breast and belly washed with pale buff.

Measurements — Length, 8.50 inches; wing, 4.33 inches; bill, .70 inch; tarsus, 1.25 inches.

Eggs — Eight to twelve, dull buff, spotted with brown and purplish gray, measure 1.35 by .95 inch.

Habitat — Northern parts of the Old World; occasional in Greenland.

This species, common in various parts of Europe, has been taken accidentally in Greenland, and hence is included in the American Check-list. It inhabits the dense vegetation of marshes and the banks of streams and ponds, placing its nest, loosely made from water-plants, close to the water. Other names for this bird are spotted rail, spotted water-hen, spotted gallinule, and water rail.

CAROLINA RAIL

(*Porzana carolina*)

Adult male and female — Upper parts olive-brown spotted with black, some of the feathers edged with white; top of head marked with a broad black stripe; head anteriorly with chin

and throat, black; sides of head and neck, jugulum, and breast, plumbeous; abdomen, white; flanks barred with white and slate.

Young — Similar, but lores brownish; chin and throat, whitish; rest of neck with jugulum and breast, light brown; bill, greenish yellow, the color deeper in the adult; iris, brown; legs and feet, greenish.

Downy young — Glossy black, with tuft of stiff, orange feathers on chin; bill, whitish, maroon at base of marilla; feet, brown.

Measurements — Length, 8.50 inches; wing, 4.25 inches; tarsus, 1.30 inches.

Eggs — Eight to twenty, light drab marked with small round dark spots, measure 1.38 by .88 inches.

Habitat — Breeds from New Jersey, Pennsylvania, probably Virginia, Illinois, Kansas, Colorado, Utah, and California, and possibly Louisiana, Texas, and Arizona, north to the Gulf of St. Lawrence, Hudson Bay, the Mackenzie River, and northern British Columbia, and recorded from Nova Scotia, Newfoundland, and Greenland. Winters from South Carolina regularly, New York rarely, Illinois, Utah (?), and California, south to the West Indies, Central America, and northern South America. Occurs also in Lower California and Bermuda, and has been recorded from England.

This rail, often called the sora, is the best known of all the species in the Eastern and Middle states, and is abundant on nearly all the marshes of the coast and larger rivers. It has a wide distribution, from as far north as latitude 62°, where it has been taken at Fort Resolution and about the Red River, to Mexico and Central America, passing through the West Indies. The habits of this bird are peculiar. Depending on the protection of the high marsh-grass, the rail seldom take to wing unless forced by circumstances. Undoubtedly its migrations

from one resting-place to another occur at night. Places devoid of birds one day abound with them the next. Of their manner of travelling we know but little, but they have been seen through a telescope on clear, moonlight nights. That the flight must be well sustained is shown by the fact that the birds regularly frequent the islands of the West Indies, and there are interesting instances of enormous flights of Carolina rail suddenly appearing on the marshes of Bermuda after southwesterly gales, arriving fat and in good condition, evidently well prepared for an ocean voyage. Undoubtedly the marshes of northern South America are among the wintering-places. In the spring they appear in the favorite haunts, along the coast and inland, in the same mysterious way, generally late in April or early May, breeding abundantly on the marshes of the interior in Wisconsin, northern Illinois, and the prairie states, as far west as eastern Oregon. The sora rail has been supposed to breed between the sixty-second and forty-second parallels. I found the birds south of Tampico, Mexico, in May, 1901, and have no doubt they were breeding. They kept in the high grass close to the water, and we only flushed them occasionally, when walking through; but there was hardly a suitable place on the islands in the large lagoon between Tuxpan and Tampico, where I did not see them.

In one instance we camped on the shore of a strip of high grass, off one of the islands. There was a beach about two feet wide between the dry marsh and the water's edge; here I noticed two pair of sora rail; they would come out of the high, dry grass, often together, drink, and at the slightest motion dart back, returning in a few minutes to go through the same performance. When exposed they are exceedingly watchful, and running along the beach look much like a small rat. The nest could not be found, but at both points where the birds appeared on the beach there was a little path leading into the grass. In its common breeding-places the nest is constructed of grass, more or less arched over, and under broken weeds and grass tops, placed near the edge of a marsh or on a solitary tussock in the water, the woven appearance of the nest making it sometimes noticeable a short distance off. The eggs are usually eight to twelve in number and are hatched in June. By August the young birds fly, and in September are shot along the coasts in their various resorts, from Connecticut through the South. The tidal marshes of New Jersey, and those of the tributary rivers of the Chesapeake, Virginia, and North Carolina, where conditions favor shooting, are all popular haunts. On the Delaware River they are killed in immense num-

bers. The negroes on the James River often employ fire-lighting, and the birds are struck with a paddle as they come in view of the light. While high water is generally essential for the regular methods of hunting, a dog is used sometimes to flush them, in places where the grass is not too thick. Unless killed, the birds are very difficult to retrieve, running and hiding, if necessary diving a short distance under water. The characteristic clucking note is often the only evidence of their presence, and this can frequently be heard by throwing something into the grass, an indignant response to the disturbance. With the first indications of cold weather the Carolina rail passes south, and after the first frosts of October the more northern marshes see them no more.

YELLOW RAIL

(*Porzana noveboracensis*)

Adult male and female — Upper parts, glossy yellowish buff, the feathers broadly tipped with black and intersected by narrow bars of white; breast, buff; belly, whitish; flanks, dusky, with narrow bars of white; axillars, lining of the wing, and exposed portion of secondaries, white; bill, greenish, dull yellow at its base; iris, brown; feet and claws, pale flesh color.

Measurements — Length, 6 inches; wing, 3.25 inches; culmen, .50 inch; tarsus, 1 inch. Specimens from the same locality show considerable variation in size and markings.

Eggs — Usually six in number; buff, with blotches of pale brown, both fine and large; measure 1.10 by .80 inches.

Habitat — Breeds from Maine and Minnesota, possibly Pennsylvania, Ohio, Indiana, Michigan, Illinois, and Kansas, north to Mani-

toba and Hudson Bay. Winters in the Gulf states, rarely north to Illinois, and in California. Occurs also in Nevada and Utah, Nova Scotia, Bermuda, and Cuba.

A diminutive member of the family, rarely seen on account of its secretive disposition, seldom leaving the safe seclusion of the marsh. It has a range from Texas to Hudson Bay, and from the Altantic Coast as far west as Utah and Nevada. The little yellow rail, or yellow-breasted rail, is taken occasionally pretty much throughout the United States, and seems to frequent fresh-water marshes; the bird is not uncommon about San Antonio, the lower part of Louisiana and Florida, and keeps in the cover of the swamps and bayous. It seems to prefer the fresh-water marshes, only rising when forced to, sometimes allowing a dog to catch it. The flight is rather faster than most of the common rail and is said to be more protracted. Its sharp note somewhat resembles the croaking of a tree-frog, a guttural *krek-krek*. The migrations of the little yellow rail probably are similar to those of other members of the family. The bird has been taken in New England in October and even as late as November. An interesting account of this species, in a letter from Mr. George B. Grinnell to Dr. Merriam, appears in Coues' "Manual of New England Bird Life," and I quote it here.

"I was working a young setter on snipe, on a

piece of wet meadow near Milford, Connecticut, and several times during the early part of the day was annoyed by the pertinacious way in which the dog would trail up some bird which neither he nor I could start. At length, during one of these performances, I saw the puppy grasp at something in the bog before him, and immediately a small rail rose and fluttered a few yards. Noticing its small size, and the fact that it had some white on its wings, and seeing from its flight that it was a rail, I shot the bird before it had gone far, and when it was brought by the dog I was delighted to see that it was *P. noveboracensis*, a species I had never before seen alive. During the day several more individuals were secured. The next opportunity I had of looking for these birds was, I think, October 14. That day my brother and I secured eight in an hour or two. They were ridiculously tame, and would run along before the dog, creeping into the holes in the bog and hiding there while we tried in vain to start them. I killed one with my dog-whip, caught one alive in my hand, and the dog brought me another, uninjured, which he had caught in his mouth. From what I saw of their habits, I am convinced that the only successful way of collecting these birds is to look for them with a dog. Without one they could never be forced from the ground."

KING RAIL

The nest is like that of the other rails, carefully hidden in the grass near some fresh-water marsh, and contains usually six eggs. They resemble those of the common sora rail, but are somewhat smaller and of a buffy brown dotted and spotted with reddish.

I mention it as a peculiar coincidence that while actually engaged in writing these lines about the little yellow rail a specimen of the bird was brought to me, shot on the Quinnipiac marshes near New Haven, October 1, 1902, the only one I have ever seen in the flesh.

BLACK RAIL

(*Porzana jamaicensis*)

Adult male and female — Upper parts, blackish; back of neck and front of back, dark chestnut, finely speckled and barred with white; head and under parts, dark slate, paler on the throat; belly, flanks, and under wing-coverts, barred with white; quills and tail feathers with white spots; bill, black; iris, red; feet, yellowish green.

Young — Similar, but crown tinged with reddish brown; throat, whitish; lower parts, ashy.

Measurements — Length, 5.50 inches; wing, 2.75 inches; tarsus, .75 inch; bill, .50 inch.

Eggs — Six to ten in number, creamy white, finely dotted and spotted with brown, measure 1 by .80 inch.

Habitat — Breeds in Jamaica, and from North Carolina, at least, north to Massachusetts, New York, Illinois, and Kansas, and probably in Ontario, Ohio, Indiana, Michigan, Wisconsin, Minnesota, Nebraska, Utah (?), Oregon, and California. Winters in Jamaica, in the Gulf states west to Texas and south to Guatemala, in California and Arizona (?). Recorded also from Bermuda and Cuba, and Nova Scotia (?).

An almost precisely similar species is described from a single specimen taken on the Farallone Islands, California. The Farallone rail (*Porzana coturniculus*) is somewhat smaller, and the back is without the white specks noticeable in *P. jamaicensis.*

This species is the smallest of the North American rails and has quite an extensive distribution, having been taken in Central America, the West Indies, and generally throughout the United States to the northern border. Its small size and exceedingly secretive habits undoubtedly go far to explain the apparent rarity. Rather than take to wing, this bird will sometimes submit to capture, hiding its head and cocking up its tail. The flight is feeble and laborious, poorly sustained, and only for a few yards, when it drops back into the grass. The note is said to be a high-pitched *chi-cro-croo.* There are instances of the little black rail having been kept alive for a few days in captivity, — under these circumstances moping about with head drawn in, occasionally moving in a deliberate way. Of its migrations we know but little. More specimens have been taken in the West Indies and southern United States than farther north. There are instances of its occurrences near Philadelphia, in New England, northern Illinois, and eastern Oregon, and in all of these localities there has been conclusive

evidence of its breeding. Mr. J. H. Batty shot two of this species in a fresh-water marsh near Hazardville, Connecticut; they were nesting. Mr. J. H. Clark records an instance from Saybrook, Connecticut, of a bird killed on its nest, by a scythe, and all but four of the ten eggs broken. The nest resembles that of the meadow lark, and the eggs are described as being white, finely dotted with bright brown. In May, 1898, I picked up a specimen of this species dead, at Cobb's Island, Virginia. It was close to the edge of a dry marsh, just inside the ocean beach, and was about half eaten by ants. A finely mounted bird was given me by Mr. Harry Austin of Halifax, supposedly killed in the vicinity.

The black rail has been found breeding commonly near Raleigh, North Carolina, by the Messrs. Brimley. The nests are situated invariably in a tussock in a wet meadow, where the water stands around the high grass. The eggs are laid from the last of May to the first of August, and are from six to eight in number.

There is a very interesting account of the distribution and habits of this species by Dr. J. A. Allen in the *Auk* for January, 1900.

CORN CRAKE

(*Crex crex*)

Adult male and female — Upper parts, buff or light drab, striped with black; wings, reddish brown, marked indistinctly with white transverse spots on the larger coverts; lining of the wing, cin-

namon edged with white; head, gray with an indistinct loral stripe of drab; throat and belly, white; jugulum and breast, pale drab; sides banded with brown and white.

Young — Similar, but without the gray on the head.

Downy young — Dark sooty brown; head, blackish; bill, dusky; iris, brown; feet, bluish flesh color.

Measurements — Length, 10.50 inches; wing, 6 inches; culmen, 0.88 inch; tarsus, 1.50 inches.

Eggs — Seven to ten in number; light buff, spotted with pale reddish brown; measure 1.40 by 1 inches.

Habitat — Europe and northern Asia; recorded in North America from Greenland, Newfoundland, Nova Scotia, Maine, Rhode Island, Connecticut, New York, New Jersey, Virginia, and Bermuda.

The corn crake is a bird of Europe, regularly breeding in Greenland, from whence it straggles to the eastern Atlantic Coast as far south as Long Island, and has been taken in Bermuda. A specimen shot near Saybrook, Connecticut, is in the possession of John H. Clark, Saybrook, Connecticut.

This species is abundant throughout Europe, frequenting wet meadows and cultivated fields. It places its nest, of grass, on the ground in a meadow or field of grain. From its habits it is known also as the land rail.

PURPLE GALLINULE

(*Ionornis martinica*)

Adult male and female — Head, neck, and lower parts, slaty purple, darkest on the abdomen; upper parts, olive-green, changing to blue toward the purple of the lower parts; sides and lining of the wing, greenish blue; wings, brighter green than back, and shaded with blue; crissum, white; frontal shield, blue; bill, red, tipped with yellow; iris, crimson; legs and feet, yellowish.

Young — Above, light fulvous brown, tinged with greenish on the wings; beneath, buff; the belly, whitish; frontal shield smaller than in adult.

Downy young — Entirely black.

Measurements — Length, 12.50 inches; wing, 7.25 inches; culmen, 1.90 inches; tarsus, 2.25 inches.

Eggs — Five to ten in number; pinkish buff with markings of purplish slate, mostly in the form of small round spots; measure 1.70 by 1.15 inches.

Habitat — Tropical America from Brazil and northern South America, north to the West Indies and Mexico, and breeding in the United States in Florida, South Carolina, and Georgia, and from Louisiana to southern Illinois. Occurs irregularly north to Massachusetts, Ohio, Indiana, and Missouri, and possibly breeds; and rarely to Nova Scotia, New Brunswick, Maine, Ontario, Wisconsin, Nebraska, Kansas, western Texas, and Arizona. Winters from Florida and Louisiana, possibly South Carolina, south. Recorded in England and Bermuda.

A bird of the southern United States, breeding occasionally as far north as South Carolina; it is found south along the Atlantic Coast from this point and from Florida to Mexico, occurring in the West Indies, Central America, and northern portions of South America. The purple gallinule has turned up at many distant points and has been taken on the Bay of Fundy and several times in New England. It is an occasional visitor to Missouri, Illinois, Wisconsin, and Ohio. Many of these remote occurrences have been undoubtedly storm-driven birds. In the localities where the purple gallinule abounds, it keeps under the cover of grass and weeds, venturing out in the early morning or toward evening to the close-by

shore, always on the alert, at the first suspicion of danger darting back to cover, only taking flight when absolutely forced. The movements of this bird on the ground, as it runs over the leaves and marshy tangles of the water's surface, are quick and graceful, and the brilliancy of its plumage remarkable. The note is loud but not specially characteristic. The purple gallinule feeds on worms, snails, and various vegetable matter, and from its fondness for the plantain, goes sometimes by the name of plantain coot, and as carpenter coot, from the noise the bird makes in breaking the shells of small snails against pieces of timber. The flesh is not particularly good. Occasionally the bird is seen contented in captivity.

FLORIDA GALLINULE

(*Gallinula galeata*)

Adult male and female — Head, neck, and entire lower parts, dark lead color, often nearly black on the head and neck, lighter on the abdomen; crissum, white; feathers of the flanks broadly edged with white; edge of the wing and edge of outer primary, white; upper parts, brownish, darkest on the rump; bill and frontal shield, scarlet, the tip of bill, yellowish; iris, brown; legs and feet, greenish yellow; upper part of the tibiæ, scarlet.

Young — Similar, but with smaller frontal shield; the entire lower parts, whitish, most noticeable on the throat; white stripes on the flanks less marked.

Downy young — Glossy black; centre of abdomen, sooty; white hairs on throat; bill, yellow, crowned by dark bar.

Measurements — Length, 12.50 inches; wing, 7 inches; culmen, 1.75 inches; tarsus, 2.25 inches.

Eggs — Five to thirteen in number; pale buff, with scattered markings of bright reddish brown; measure 1.80 by 1.25 inches.

Habitat — Tropical and temperate America, from Chili and Argentina north to the West Indies, and in North America to Massachusetts, Vermont, New York, Ontario, Minnesota, Nebraska, Texas, Arizona, and California, breeding throughout its range. Occurs also rarely in Maine (possibly breeds), New Brunswick, Nova Scotia, Quebec, Colorado, and Lower California. Winters from South Carolina, Illinois, Texas, Arizona, and California south. Resident in Bermuda and the Galapagos Islands.

The Florida gallinule is most common in the southern Gulf states, and is abundant in various regions of northern South America, Central America, and Mexico, along the Gulf coast, ranging north into various parts of the Great Lake region, and occurring sparingly in New England and along the northern border of the United States. It frequents the smaller marshes, keeping pretty much to the grass and sedge, avoiding flight if possible; and, when forced to take wing, does so in rather a laborious way, with feet hanging down, at this time often uttering its harsh cry. The bird breeds throughout its range in secluded fresh-water marshes, constructing the nest of rushes and withered plants, covering its eggs when away. Both sexes share in incubation, often hatching a second brood in the same nest; the flock of eight or ten keeping in places where the edges of ponds afford abundant cover in the form of rushes and

sedge. If the haunts are carefully watched, the birds will be seen occasionally to emerge and run about the exposed shore, watchful all the time, darting back into the grass at the slightest provocation. The food consists of various seeds and snails, but the flesh is not particularly good. North of South Carolina this species is more or less irregular, but breeds commonly in the marshes of northern Illinois, southern Wisconsin, and about Lake Ontario.

AMERICAN COOT

(*Fulica americana*)

Adult male and female — Head and neck and anterior central portion of crissum, black; lateral and posterior portions of crissum, edge of wing, and tips of secondaries, white; rest of plumage, slate color; bill, white, becoming bluish at the end; both mandibles, with a dark brown spot near the ends, bordered anteriorly with a less distinct bar of chestnut; frontal shield, dark brown; the culmen, just in front, tinged with yellow; iris, bright hazel; legs, yellowish green; the tibiæ, tinged behind and above with orange; toes, bluish gray, tinged with green on scutallæ and basal phalanges. In winter the lower parts are paler.

Measurements — Length, 14 inches; wing, 7.50 inches; culmen, 1.25 inches; tarsus, 2 inches.

Young — Similar but paler; throat, white; rest of lower parts tipped with whitish; head, slate color, speckled with whitish; iris, brown; bill, dull flesh color, tinged with greenish; frontal shield, rudimentary.

Downy young — Ground color, blackish; the downy feathers prolonged in slender bristles, which are pale orange on back and breast, reddish orange on neck and chin, and whitish on rest of body; occiput, bare; rest of crown, black without bristles; lores

covered with short, orange-red papillæ; bill, orange-red; maxilla, tipped with black; legs and feet, isabella color.

Eggs — Six to fifteen in number, light buff, sprinkled with minute specks and dots of dark brown and blackish, measure 1.85 by 1.25 inches.

Habitat — Breeds in the West Indies, Mexico, and Lower California, and in North America in Florida (?), and from Virginia, Pennsylvania, Kentucky, Louisiana, Texas, and the Mexican border north to New Brunswick, Quebec, Hudson Bay, the Mackenzie River, and British Columbia. Occurs also in Nova Scotia, Labrador, Greenland, and at Fort Yukon, Alaska. Rare east of the Alleghanies, except in fall migration. Winters from Virginia, possibly New Jersey, Kentucky, Indiana, Illinois, Missouri (?), Utah, Nevada, and British Columbia, south to Panama and Trinidad (?). Occurs in Bermuda.

Widely known as mud-hen; a common bird throughout temperate North America and ranging through the southern countries to northern South America and the West Indies, it breeds generally throughout its range. It is common as far north as the marshes of the Saskatchewan and has even been taken in Greenland and Alaska. The coot is not common on the Atlantic Coast except in the more southern portions; but in the interior and on the prairie sloughs it swarms, in some instances almost covering them; after the last duck has left the pond the mud-hens remain, and only when obliged, move out of the way. In taking wing the birds run along the surface of the water for a short distance before leaving it, — if there are many of them, with great clatter, — finally rising, when their low flight is marked by

a whir of wings. On the water they are excellent swimmers and good divers, occasionally obtaining their food from shallow bottom. This consists of various grasses and vegetable matter, snails and little shellfish, a diet which is not conducive to excellency. The flesh of the bird is dark and unpalatable. The nest is among reeds and grasses close to the water, loosely constructed of rushes; it is quite a bulky structure and contains from ten to fifteen eggs. The coot is often seen in company with the different varieties of ducks, the ducks in some instances feeding on the water grasses and vegetable matter the mud-hens bring up. In April this species is the most abundant bird on the lagoons and marshy lakes along the Gulf Coast of Mexico, occurring in vast flocks, covering, in some instances, an acre or more. The natives regularly salt the flesh for food, preferring to hunt them rather than ducks because of the numbers that can be killed at a shot. On one occasion I saw twenty-eight picked up after a single barrel. On the large sounds south of Tampico, we were wakened regularly through the night by flocks suddenly leaving the water; the noise made under these circumstances was great. The birds were startled by alligators, which were numerous everywhere and undoubtedly preyed upon the mud-hens. In one instance this performance was seen.

EUROPEAN COOT

(*Fulica atra*)

Adult male and female — Similar to the American coot, but somewhat larger; tip of secondaries, not white; very narrow white edge to outer primary; bill, pale red, tipped with white, and without dark spots; frontal shield, bluish white.

Young — Similar to adult, but more grayish; bill and frontal shield, greenish; iris, brown.

Downy young — Similar to the American coot, but the long filaments on the body whitish.

Measurements—Length, 16 inches; wing, 8.25 inches; culmen with frontal shield, 1.85 inches; tarsus, 2.30 inches; middle toe, 3 inches.

Eggs — Six to fourteen in number, pale buff, spotted with brownish black and purplish gray, measure 2.15 by 1.50 inches.

Habitat — Northern parts of the eastern hemisphere; accidental in Greenland.

The European coot closely resembles our bird in appearance and habits. It is slightly larger, has less white on the wings, and no dark spots on the bill. It inhabits the marshy ponds of Europe, placing its large and loosely formed nest among the rushes that it frequents. Professor J. Reinhardt has reported its occurrence in Greenland.

CHAPTER VIII

SHORE-BIRD SHOOTING

SHORE-BIRDS bring to our minds the marshes and flats along our shores in summer; from the northern limits of the Atlantic to the pampas of the Argentine Republic and Patagonia are their haunts. Early in the summer, their nesting duties over, their young fledged, they gather in flocks on the shores of the Arctic Sea and the countries of the North. With the waning of the Arctic summer they are on their way, and by early August this army has reached the coast of Canada and the United States. The heart of the sportsman is glad. He sees the broad expanse of shallow flats, left bare by a falling tide, their feeding-ground, and the marsh dotted with little pools, their resting-place, the outlying points by which they fly, the flight with the rising water. It is all irresistible, well may he yearn for the beaches and marshes. Formerly myriads of these birds followed our coasts on their journeys north and south, stopping a time where extensive feeding-grounds enticed them. Cape Cod, Long Island, Barnegat, the bays of Virginia and North Caro-

lina, — what could these beaches tell of shore-birds and man's wantonness! It is the same old story, oft repeated in these pages. They are gone; a vestige remains and follows the migratory courses south, but the hordes of the past will never again be seen. Many of the commonest have become rare. Flocks of golden plover once blackened the air along our shores, now few are seen; the Eskimo curlew has suddenly disappeared; the godwits and the long-billed curlew are hardly stragglers on the eastern coast. Sportsmen and gunners still hunt the remnant. Shore-bird shooting has so changed in the past few years that the descriptions of former, even recent, haunts seem almost strange.

In 1886 I spent a summer at Monomoy Island, Cape Cod. We stayed at the branting shanties in charge of Alonzo Nye. It was early in August, the weather had been steadily hot, and on our arrival there were but few birds on the flats: some turnstone, dowitchers, and several small flocks of plover were all; but with the next few days there was a change, and by the 10th of August blackbreast swarmed. There were thousands, and other big birds in proportion. At that time, close to the branting shanties was a cut-through, an opening from the ocean into the bay, and where it broadened on to the flats were patches of sedge, the remnants of an old marsh.

On these little patches the grass grew thick and high, affording ideal cover. At the height of the tide perhaps a foot of water covered them. With low water they were bare, surrounded by flats that reached out into the bay for miles. An hour or so after the ebb tide we took our places in these clumps, set out a few decoys in the shallow water at their edge and waited for the flight. Almost on the hour it came: first, blackbreast, flying well up over the water in flocks of ten to fifteen, sweeping over the bay from the high outer beaches where they roosted and spent the time at high tide. I remember the first one I shot: it was one of a flock of a dozen or more, and they came right overhead, flying full with the wind.

But to get back to the blind and decoys. Generally we waited a half-hour for the tide to reach just the right point; I marked it with a stake, and just as that stake showed I considered the time had come to keep low. Many a time have I looked out on the water from just over the tops of that clump of grass and seen a string of birds leading up from the east, then crouched back again and endured mosquitoes untold until it came time to be up and doing. One morning I shot twelve blackbreast here at a tide; this doesn't sound very big, but the days when I have killed more since have been few. There is something fascinating about a plover over the decoys.

With dovelike speed they come, when just at the edge of the stool the wings droop — the birds sail on set wings for a second, then light; instantly suspicious, they run a few steps and leave as quickly as they came. You hear the shrill, sweet note, faint and far off; it answers your clumsy attempt to whistle, and in a minute the graceful birds hover at the mercy of the gun. Occasionally the mellow note of a yellowleg announces a different visitor. Yellowleg were not very abundant at Monomoy, but we usually gathered in a few. Their flight lacks the speed of a plover, and they sail along calling frequently, asking for a place to light; unfortunately places were plenty. Rarely dowitchers were in evidence; they came singly and in small flocks, and the little compact bunch generally accepted the invitation to tarry; once shot into and a few birds downed, the others heard their cries, and came again. For two or three days after a heavy storm there was quite a flight of redbreast; one afternoon a pair of curlew circled over the decoys too close; these were the first I had seen. I remember a good-sized flock of willet, one of the few times I have ever seen them in a flock; they came by a good way off and parted with a single bird. This was the run of birds we saw at Monomoy that summer. The shooting generally lasted for over an hour on the ebb-tide. During

the intervals, when larger shore-birds were not forthcoming, the attention was attracted by the countless terns on tireless wing, everywhere about, diving at the decoys, screaming whenever any bird met its fate; now and then dark-colored jägars chased the terns and robbed them of their food, or often a clumsy heron squawked out a protest at the desecration of its favorite marsh. These sights and sounds of the shore were ever present; now even the gulls are gone.

That summer at Monomoy was a first experience and like all such, the pleasantest of all.

There are one or two points in Shinnecock Bay, Long Island, from which now, with favorable winds and weather, good bags of birds can be made. For the past two summers a gang of market hunters have lived on the best point, sleeping in their boats and watching decoys from dawn to dark, all summer long. Here, on several occasions, some years since, I enjoyed a good day's shooting. A Shinnecock Indian, Bunn was his name, generally went with us. We spent the night before at Southampton and drove over; Bunn was on the point, stools set and ready; it was some time before light, and mosquitoes were in swarms. We hunted them for a while until the clear note of a yellowleg called us to order. At Shinnecock nearly every bird leads by this particular point, so we counted on one yellowleg

just as soon as it whistled. Bunn replies once or twice, with the result the bird is fixed; it circles before the blind and swoops among the stool to drop at the first shot. A flock of three, two big yellowlegs and a little one, now head for the stand, low down close to the water; they don't need any encouragement. My companion, without a conscience, pots two, the third gets off; but Bunn seduces him, and this time he stays. Sunrise is at its height, and as we face the glow a flock comes out of the east, looking black and big; we flatten down, and soon six plover cut over the stool; my pot-hunter pal waits for them to light and line up, with the result he doesn't even get a shot. A few more yellowlegs straggle along. Bunn calls in a good-sized bunch of kriekers, which are nearly all murdered; a single dowitcher, and we count up about eighteen birds — a monstrous big bag for Shinnecock.

The bays of Virginia and North Carolina, spring and fall, are the tarrying-place for thousands of shore-birds; here many make a last stopping before the tedious flight to Labrador and beyond, in calm weather probably keeping straight out to sea from the time of their leaving. These waters are lined with shallow flats, dotted everywhere with marshes, a shore-bird's paradise. In these spots I have spent many a delightful hour, out of reach of the world in a Chesapeake Bay

boat, anchored close to a marsh, where with the first break of day we shall be hidden in a seaweed blind behind a stand of decoys. We have our supper of broiled birds, and eat a big one, then sit and smoke a bit and turn in. It isn't a perfectly comfortable bunk. Further particulars are not necessary; but we sleep just the same, and when the time comes to wake up, even the thought of curlew doesn't make us lively — but this is only temporary. We get breakfast; Davy puts us ashore and carries a big basket of decoys up to the blind; he sets them out and leaves us; the tide is just right, and in a few minutes it will be fairly light. A whistle off to the left indicates curlew are about, and we keep a careful lookout. A flock of six suddenly appears in front of us without warning; they catch the establishment unawares and shy off, but we see a pair following in their wake and call them up. Curlew do not often alight to decoys here, for the blinds are large and conspicuous and not on the feeding-ground; but they often fly by in range, and so did this particular pair, with the result that there were two less curlew on Broadwater. A flock of dowitchers now curve around the stool and give us a hovering shot; four or five escape, but come back and hover some more with disastrous results; a pair of laughing gulls and any number of terns protest against such actions, with no avail. Some more curlew; there are any

quantity of birds stirring; flock after flock of curlew has passed by just out of reach; now we let loose at four; a little nearer, and one folds up. A plover comes next and decoys without a second thought, then another small bunch of dowitchers; a single bird is left when we finish. John cuts down a curlew way off in front. The tide is getting down, and birds are less in evidence; our visitors now are turnstone; we stop shooting them after a time; Davy comes up with his basket, and we go back for lunch. He counts up ten curlew, and about thirty birds in all.

Among the most popular resorts for shore-birds now are the islands in the Gulf of St. Lawrence and parts of the adjacent mainland. For a number of years I have patronized some of these spots. We spent a few days not long ago at Amherst, and stayed at Metric's. Metric was a French-Canadian who owned a horse and good wagon, so we put up at his house; he drove us over every morning, four miles to the beach — a hard drive over soft sand. On one particular morning, three of us crowded into his cart and Metric's horse dragged the outfit for about an hour, then just struck and refused to go any farther, so we piled out. It had been storming hard for three days, blowing and raining, and was doing both then; in fact it was blowing so hard you couldn't face the wind without finding your face in a sand-bank.

The tide was high and it was still dark; we couldn't see exactly what to do. There was some little discussion; my companions wanted to cross over the lagoon and shoot from the farther side; the island we were on seemed good enough for me. We wound up by each going his own way; I stayed put. It was perhaps a hundred yards to the farther end of the bluff, which was surrounded on all sides by the tide; this would afford some protection from the wind, and thither I go; a narrow spit of sand formed a bar at this end, and here stood a single plover, all of which seemed a good sign. After finding as dry a place as possible for my gun and shells, I look around for some seaweed to make a blind with; as is usually the case when you want seaweed very much, or anything else, it isn't to be had, and it was only after considerable labor that I could scrape enough together to pretty well cover me up, if I stretched out full length. I had about a dozen flat wooden decoys, and I set these out in water at the edge of the bar. That single plover was the only evidence of anything alive up to date, and it must have been close to six o'clock. Soon a flock of Caspian tern squawked at the blind — they evidently had a liking for the bar. Several Bonaparte's gulls circle around it for a while, then put up with what they can't help, and light in the decoys; presently a flock of blackbreast, far out

over the lagoon, entices me out of the shelter of the bluff; I shudder once or twice, and then lie down on my back in the wet sand. The clear, shrill note of a blackbreast rings out, and presently comes the first shot; it was a lucky one, for the bird didn't light or pretend to, but just swept by with the wind. A flock of three; all hover, I kill one. Four, and then a pair, and several single birds, all blackbreast, come heading into the stool under the lee of the island. Now they are everywhere, all following the lagoon toward the flats, which are beginning to show. I have been shooting fast, and considering wind and everything else, have done pretty well. A flock of peep with something big in it comes along; I bag the big part of the bunch and pick up a dowitcher. Several single yellowlegs drop in, a few more blackbreast, and one curlew. The curlew was a hard shot, high up and a good way off, but he collapsed at the second barrel. The tide has left me high and dry, or rather high and wet, and as the flight is over, I pull up stakes. There are over thirty birds, mostly blackbreasted plover, piled up by the blind. This was the biggest bag of blackbreast I ever made. I wonder if my wayward pals have been done up and come to the conclusion they have; it is a long way across to the other shore, but here goes, and I drag myself over the soft, wet sand. They had found good shooting, — one

bagged twenty-five, the other eighteen, — and both were congratulating themselves on having done me.

WADING THE MARSHES

Though decoys and blinds are required in shooting successfully most varieties of our shore-birds, by wading the marshes it is possible in some instances to shoot yellowlegs and grass-snipe, while the Wilson's snipe is always killed in this way. Generally a sportsman will prefer boots to going without, though the lightest of these are heavy and hot. Early August is the season the summer yellowlegs first frequent our marshes, when the grass is beginning to be cut and the salt meadow is dotted here and there with haycocks. In the area where the grass has been freshly mowed insects swarm, and here waders that seek the marsh will likely be. The early hours of morning are none too soon, and if the gunner has picked a day when birds are there, the mellow whistle of a yellowleg soon tells their whereabouts. Moving carefully in the direction of the note, the birds are soon in evidence, probably near some pool in the short grass or in the wet meadow. Likely they take wing at the first suspicion of approach, and perhaps no clumps of hay offer the chance of crawling up. If there is nothing to hide behind, the gunner just drops; and now comes the opportunity for whistling. A yellowleg is easy to imitate, and usually readily

replies. The flock rise high and circle about the marsh. Continually to their cries comes the answer from the spot they left. The birds hesitate and finally turn, heading back for the little pool. Once within range a single bird drops, the mark is easy, and before the frightened flock recover they leave a second. In the early morning hours restless, uneasy birds, looking for a place to light and companions, often betray their presence long before they come in sight. A single yellowleg is usually susceptible, and sometimes when shot at offers himself a second time. In case a wounded bird utters distressed cries, near-by relatives are very liable to respond, for like many of our waders they love their own. If a large flock is disturbed from some feeding-place, the birds after a time may return in small numbers, and this offers a rare opportunity.

Next to the yellowleg perhaps the "krieker" is most commonly met with on the marshes. Krieker is a popular name for the pectoral sandpiper; the bird is also called jack-snipe and grass-snipe. They are generally found in small flocks and often separate over a small patch of grass, jumping up singly or in twos and threes. If in the right cover, these birds not infrequently allow a close approach and rise something after the manner of a snipe. Late in the fall we find them occasionally in very large flocks.

There is something fascinating about the marsh seen in this way, and even mosquitoes do not detract from the charm of it. With the heavy storms of August and September the salt-water meadows along the coast are often a shelter for birds otherwise seldom seen on them. The golden plover drop in now and then, and the redbreast. I have seen phalarope in the little pools among the grass; hence during the end of a storm or immediately after is the time. Dowitchers are marsh dwellers, and not infrequently lie close in the grass. They rise with the twist of a Wilson's snipe.

Lastly comes the most important. I speak of him last for the reason his habits differ from the other shore-birds, and then, too, because a good thing is often fitting at the end, — the Wilson's snipe.

This bird is the favorite of them all, and has paid the price of popularity. The haunts of the Wilson's snipe differ from those of the other waders. While he is on many of the marshes they frequent, his happy home is the bog where the marsh is so soft it shakes as you step from tussock to tussock. Here in the treacherous mire he may escape — may treacherous mires long last! On the dry marshes the snipe stops, but the time of his lingering is generally short. Dog and man pursue him. Little

spring holes marked with green fresh grass are the nooks that bear his evidence. Often in these patches we come on companies of five or six, or perhaps they are well scattered on the dry marsh, and, under such circumstances, wild. In all events, hunt them down wind and allow no advantages to the twisting flight. With a startled "scaipe" a snipe rises close in front, and the gunner of experience either nails it on the second or lets it twist a bit and straighten out, and when the bird falls, marks close the spot, for with back upward a snipe is hard to see.

With approaching evening they become active, and the "scaipe" of a restless bird looking for a spot to "bore" in peace is one of the dusk sounds of the marsh.

THE SHORE-BIRDS

(*Limicolæ*)

To all the inhabitants of the earth the shore-birds are familiar; for from the dreary wastes of Grinnell Land, and the solitude of Kerguelen, to the steaming jungles of Brazil and the arid plains of the Sahara, in the coral islets of ocean and far up the snow-capped mountains, hardly a spot can be found that some one of these birds has not visited. Of the more than two hundred and fifty species in the order, about seventy have been found in North America. While the breeding home of many species is in the far North, —

where on the boggy tundras that fringe the Arctic Coast, about the little pools and sluggish streams, where man is rare and insect life abundant, they pass the short, hot Arctic summer, — others breed throughout the United States, their sprightly forms well known from the long reaches of sandy beach to the wood-encircled lakes high in the mountains.

When in the middle of summer the vanguard of the returning hosts arrives in Maine, a gun is fired whose echoes reach to Florida, the reverberation never ceasing, except in hours of darkness, until in late spring the survivors seek again their northern homes. Gentle, naturally friendly and unsuspicious, easy to decoy, flying in compact flocks, and most of them compelled by the sources of their food-supply to inhabit open country, there are no birds classed as game whose destruction is so readily obtained. The wonder is that in spite of the fusillade that greets them all along our coast, so many yet appear in spring and fall. But this cannot last much longer. The golden plover are gone; the Eskimo curlew gone; the woodcock and Wilson's snipe appear in greatly diminished numbers, and even the "peep" are with us in but a small percentage of their former multitudes. Unless something is done, and done quickly, to protect better those that remain, shore-bird shooting on the Atlantic Coast will be forever a thing of the past.

In the West the conditions are not yet so bad, as larger game is still fairly abundant; but as the swamps are drained, the plains ploughed for crops or fenced for pasture, localities suitable for the breeding of these birds are rapidly decreasing, and species abundant only a few years ago are now hardly common. Some few varieties may hold their own, adjusting themselves to circumstances, but to many this is impossible; and with their departure our country will lose to a nature-lover some of its most pleasing ornaments.

Shore-birds are usually small, the largest attaining about the size of a grouse. The habits of most of them are expressed in their name, or by "mud dwellers," a literal translation of Limicolæ; although a few groups, as the coursers and thick-knees, inhabit sandy, barren tracts far from water, the woodcocks often dry and woody hillsides, and the pratincoles catch their food in the air like a swallow. They are wading birds, feeding as a rule on insects, crustaceans, shellfish, and even small fish, which they catch in the water or pick up along the shore. A few species devour worms, for which they bore in the mud, and those frequenting the uplands live largely on grasshoppers, crickets, and berries of various kinds. Fitted for such a life, their legs are usually long, their necks long, and, except in one group, their hind toe is small and sometimes absent. In some

the toes are partially webbed, but very often they are separated to the base. While some species are sedentary, many perform remarkable migrations, travelling in a single season from the Arctic Coast to Patagonia; as a result their wings are usually long and pointed. In plumage many shore-birds are very beautiful, the sexes usually similar; often the winter plumage is quite different from that assumed in spring, and that of the young different from either. Frequently the males assist the females in incubation, and in a few the male performs all these duties, the female doing most of the courting. The males of many have a pleasing song in the mating season, often a song-flight, while the courting of others is a very interesting spectacle. One remarkable bird is polygamous, the males assuming in the breeding season a large and party-colored ruff on the neck. Almost all of the order breed on the ground, forming a loose nest of a few leaves and grasses, often no nest at all. The great majority lay four eggs, usually pyriform in shape, with olive or buffy ground color, mottled with darker. The young of all are covered with a soft down, and are able to run and pick up food as soon as hatched.

The bills of the shore-birds vary greatly, being often long and slender, as in the sandpipers, sometimes pointing upward as in the avocets, or down-

ward as in the curlews; it may be broad and flattened at the point as in the spoon-billed sandpiper, or with the point bent sideways at an angle as in the crook-billed plover — an inhabitant of New Zealand. We find it pigeon-like in the plovers, rather short and pointed in the turnstones, long and wedge-shaped in the oyster-catchers, and with a heavy sheath at base in the sheath-bills; but always its shape is that best fitted to obtain the food on which the bird subsists.

Seven families are found in North America, the phalaropes (*Phalaropodidæ*), avocets and stilts (*Recurvirostridæ*), snipes and sandpipers (*Scolopacidæ*), plovers (*Charadriidæ*), surf-birds and turnstones (*Aphrizidæ*), oyster-catchers (*Hæmatopodidæ*), and jacanas (*Jacanidæ*).

THE PHALAROPES

(*Phalaropodidæ*)

The phalarope family contains only three species of small birds, two of which breed in the far North and occur throughout most of the northern hemisphere in migration, while the third is confined in the breeding season to the interior of North America. They differ from the other families of the order by combining a bill, slender and as long as the head, a long neck, breast feathers compact and duck-like, legs flattened

laterally and with transverse scales in front, anterior toes with lateral membrane, and webbed hind toes. They are excellent swimmers, obtaining all their food in the water, and two species spending most of the year on the ocean, often far from land and sometimes in enormous flocks. They are gentle birds, never suspecting danger, and float on the water with marvellous grace, as they feed on the minute ocean life, or the oil sometimes on the surface. All are handsome birds, but the females have much more brilliant plumage than the males, and are said to do all the courting; when that is finished, leaving the males to incubate the eggs and care for the young. All the species are found in North America and have been separated into three genera: *Crymophilus*, *Phalaropus*, and *Steganopus*.

RED PHALAROPE

(*Crymophilus fulicarius*)

Adult female in breeding plumage — Top of head, forehead, sides of bill, and chin, black; face and a line about the eye, white; neck and entire under parts, deep cinnamon, with a narrow, dusky line on back of neck; back and scapulars, black, the feathers tipped with buff; the primaries, brownish on the outer web, with dusky tips, grading into white on the inner web; secondaries, brown, edged with white; wing-coverts, dark gray, the middle ones with white edges; a white bar across the wing; rump, plumbeous in centre, white on the sides; upper tail-coverts, cinnamon; middle tail feathers, black, remainder, slate, the two outer ones with rufous tips; bill, yellow, with a black tip; legs and feet, yellowish olive; iris, brown.

Adult male in breeding plumage — Resembles the female, but less brilliant; the feathers on the crown and back of neck, marked with yellowish brown; white on the sides of the head is less defined; feathers on the abdomen, tipped with white.

Adult male and female in winter plumage — Back of head and about the eyes, with a line on the nape and upper part of back, black; rest of head, neck, and under parts, white; back and scapulars, dark gray; wings and rump, brownish black; wing-coverts and secondaries with white edges; tail, brownish black with pale outer feathers; bill, dark; legs and feet, grayish olive.

Young — Top of head and upper parts, dull black, the feathers with brownish edges; wing-coverts, rump, and upper tail-coverts, lead color; middle coverts, edged with buff, tail-coverts with brown; head (except the crown) and lower parts, white; throat, tinged with buff.

Downy young — Above, bright tawny buff, striped with black; crown, bright umber-brown, bordered with black; chin and throat, light fulvous buff, changing to white on abdomen.

Measurements — Length, 7.50 inches; wing, 5.50 inches; tail, 2.50 inches; tarsus, .90 inch; culmen, .85 inch.

Eggs — Three to four in number, greenish drab, marked with blotches of sepia-brown, measure 1.15 by .85 inches.

Habitat — Northern shores of both continents. In North America breeds north of 68° on the coast of Greenland, south of 75° in Cumberland, in Melville Peninsula, on the shores of the Arctic Ocean at Franklin Bay, Point Barrow, Cape Prince of Wales, and south to the Yukon Delta, Alaska, and Hudson Bay. Ranges in winter south on the oceans from the coast of South Carolina and California to Chili, Argentina, and Hawaii, and casually in the migrations in the interior of the United States to western New York, Ohio, Indiana, Illinois, Michigan, Idaho, and Wyoming. In the eastern hemisphere breeds in Iceland, Spitzbergen, and northern Siberia, and has been found in winter as far south as the coast of Morocco, India, China, and New Zealand.

The red phalarope is a companion of the whale, and its presence in large numbers at sea is a welcome sight to whalers. As soon as the whale

blows, the birds congregate in the vicinity, feeding on the animalculæ and minute marine animals brought to the surface, often lighting on the whale itself. They are found at times far from land, and after a storm have been noticed hundreds of miles out at sea. Off the coast of Greenland and the shores and islands of the North Atlantic the bird is found as soon as the ice breaks up, and is a common summer resident. The nest is on the ground, a mere depression lined with grass or leaves, and is near the water. Incubation is begun early in July; the female reverses the custom of all other birds, does her own courting, while the more insignificant male attends to most of the incubation affairs and does as he is bid. When the young are fledged the birds soon resort to the open water, although at times frequenting the ponds and bays near the shore. The adult female of this species, in the full breeding plumage, is a beautiful bird and a fitting ornament to nature's wilderness of sea and ice. Early in August the adult plumage is changed to gray and the birds start on the migration south. After leaving their summer resorts they seem to prefer the sea, well offshore, braving heavy storms of fall, in winter passing south as far as the West Indies.

There are instances of the red phalarope coming on board ships, and in my collection is a fine

specimen, presented to me by Mr. Downs of Halifax, which was brought to him alive by a sailor, wrecked off Sable Island, who secured it in this way. The birds are sociable, gathering in large flocks, flying low and gracefully just over the waves' crest, and have no fear of man, living as they do in places he seldom disturbs.

In August they are found in some numbers off the coast of Maine, frequenting the tide-rips near Grand Manan, in company with the northern phalarope. Off Cape Cod this bird is not infrequently taken in the spring, after heavy weather. Enormous flocks are seen occasionally at great distances from shore off the coasts of North Carolina, Massachusetts, and Labrador, the Aleutian Islands, and Lower California in the spring and fall. The most maritime of the phalaropes, it seldom voluntarily approaches land except in the breeding season, and even then keeps in the neighborhood of salt water. This species is the most graceful of all birds on the water, floating like down, and in powers of flight far surpasses the other phalaropes. It is known as bow-head bird, whale-bird, sea-goose, coot-footed tringa.

NORTHERN PHALAROPE

(*Phalaropus lobatus*)

Adult female in breeding plumage — Upper parts, head, neck posteriorly, dark lead color, with feathers on back and scapulars tipped with rusty; a white line above and below the eye; neck

in front and laterally with the upper part of breast, bright rufous, bordered beneath by a band of plumbeous; throat and under parts, white; flanks, white, streaked with dusky; wings, blackish brown, with a white bar; centre of rump, black; sides, white; tail, blackish brown.

Adult male in breeding plumage — Similar, but the markings are more dull and indistinct; the head is sooty, slightly marked with light brown; the back is more marked with buff; the rufous of neck and breast are less clearly defined; the bird averages smaller.

Adult male and female in winter plumage — Forehead, superciliary stripe, cheeks, throat, and under parts, white; a black spot in front of the eye; top of head, gray, with a grayish stripe under the eye; neck laterally, white, tinged with buff; back and wings, slate, edged with white; rump and tail, dark brown, the central feathers bordered with light gray.

Young — Top of head, dusky; back and scapulars, blackish, tinged with buff; upper tail-coverts and tail, dark brown, edged with chestnut; forehead, front of the eye, line above the eye, and under parts, white; sides of breast, shaded with brown; iris, brown; bill, black; legs and feet, plumbeous.

Downy young — Above, bright tawny, marked on crown, auriculars, and rump with black; spot of brown on crown; throat and sides of head, pale tawny; lower parts, white.

Measurements — Length, 7 inches; wing, 4 inches; tail, 2 inches; tarsus, .75 inch.

Eggs — Four in number; ground color, greenish drab marked with fine, numerous spots of sepia-brown, measure 1.10 by .80 inches.

Habitat — Arctic regions of both hemispheres. In North America it breeds in southern Greenland and in Cumberland up to 73° north latitude, Labrador, the Barren Grounds, Hudson Bay, Alaska, the Aleutians, and the islands in Bering Sea. In winter keeps away from the shore on the Atlantic and Pacific oceans, and has been taken as far south as Nicaragua and Peru, and in Bermuda and Hawaii; but in the United States, excepting southern California, few if any occur from November 1 to April 30. Occurs throughout the United States in migration, except possibly Georgia and the states bordering on the Gulf of Mexico. In the Old World breeds in Iceland, the islands

north and west of Scotland, and on the continent from the northern limit of forest north to the Arctic Ocean. Winters on the coasts of Europe, rarely in the Mediterranean, in Persia, India, China, and the Malay Archipelago.

Less maritime than the red phalarope, this species migrates regularly, usually in small numbers through the interior of the United States, but is only found in very large flocks on the ocean, where, in May and again in August, great numbers have been met with off New England, Labrador, the Aleutian Islands, and California. In the breeding season this bird frequents bodies of fresh water, returning to the coast after the young are fledged.

The boreal regions of both continents are the breeding-grounds, but as soon as its young are bred it resorts to warmer climes. All summer long the northern phalarope is found in the tide-rips about Grand Manan; the flocks are very gentle and usually allow a boat to approach close to them, taking wing quickly and gracefully, keeping close to the surface of the waves, and uttering their sharp, metallic *tweet;* they settle on some floating débris or seaweed, perhaps alighting in the rough water. The birds feed on little shrimps and animalculæ, seldom coming on to the shore except in stormy weather. Though flocks of phalarope abound in this location through the summer, the nest has not been found, and the birds

evidently do not breed in Maine. In the far North they spread out over the smaller bodies of water, and are often met with far inland. The nests are a mere depression on the ground lined with leaves or grasses, in some localities placed in tussocks. In Shetland this species lays its eggs in small colonies on a few straws in a drier portion of the marsh; the birds themselves, except when incubating, frequenting other parts of the same swampy tract.

The birds are a devoted pair, following each other about and keeping close to the nest. The male is the smaller and more insignificant bird, performing most of the incubation duties. On the surface of the water the phalarope floats lightly, and has much the appearance of a miniature duck. Late in July the young are fledged, and the old birds begin to change the rich plumage of the spring for one of gray and white.

They migrate south along the coast, keeping to the open water, extending their course well into the tropics.

The northern phalarope wanders irregularly to most portions of temperate Europe and Asia. In North America it has occurred frequently inland, particularly after heavy storms, and is taken on our Great Lakes and rivers.

On the Pacific Coast it is common in Alaska, but less so farther south. The bird has been

found in the Bermudas, Guatemala, and the Isthmus of Tehuantepec. In Connecticut, Long Island, and New Jersey the northern phalarope is rare.

It is known also as sea-goose and whale-bird, although the latter name should be applied more properly to the red phalarope.

WILSON'S PHALAROPE

(*Steganopus tricolor*)

Adult female in breeding plumage — Forehead and top of head, pearl-gray; occiput and nape, white; a stripe on each side of the head, passing down the side of the neck, black, changing on the lower part of the neck into rich chestnut, and this is continued as a narrow stripe to the scapulars; short stripe above the lores and eyes, and throat, pure white; jugulum, buffy cinnamon, fading into the creamy buff of the breast; remaining lower parts, white; wings, grayish brown, with paler coverts; rump, grayish brown; upper tail-coverts, white; iris, brown; bill, legs, and feet, black.

Measurements — Length, 9.75 inches; wing, 5.25 inches; tarsus, 1.30 inches; culmen, 1.30 inches.

Adult male in breeding plumage — Of smaller size and much less strikingly marked; top of head, brown, the feathers tipped with gray; a broad mark over the eye, white; sides of neck, dull brown; back and wings, dusky, the feathers tipped with pale brown; rump and tail, brownish black, margined with white; primaries, blackish brown; neck in front, pale brown; throat and under parts, white.

Measurements — Length, 8.50 inches; wing, 4.75 inches; culmen, 1.25 inches; tarsus, 1.25 inches.

Adult male and female in winter plumage — Upper parts, ash-gray; rest of plumage, white, tinged with gray.

Young — Upper parts, blackish, feathers edged with buff; upper tail-coverts, superciliaries, and under parts, white, with a rusty tinge; tail, gray, edged and marked with white.

Downy young — Above, bright tawny, marked on crown, hind neck, rump, flanks, and tail with black; below, pale tawny, becoming white on abdomen.

Eggs — Four in number; color, drab, spotted with bistre; measure 1.37 by .94 inches.

Habitat — Breeds in the interior of North America, from Illinois, Indiana, Iowa, Kansas, Colorado, Utah, Nevada, eastern California, and probably Mexico, north to Assiniboia, Alberta, and Manitoba, and possibly Hudson Bay. Passes south through Central America, wintering from Mexico to Brazil, Patagonia, Chili, and the Falkland Islands. Has been recorded in migrations from Quebec, from Maine to New Jersey on the Atlantic Coast, and British Columbia to Lower California on the Pacific.

A bird of the Western states, most common on the prairie and the alkali lakes of the highlands, going as far north as the plains of the Saskatchewan. It is found through the summer in Illinois, Wisconsin, and Minnesota, more abundantly in Dakota and Montana and in districts close to the Rocky Mountains. In Nevada and Utah and Salt Lake Valley this bird is very abundant, both spring and fall, while many remain to breed.

In northern Mexico I saw the Wilson's phalarope in late May; nearly every small pool had its pair. The female in its breeding dress is a beautiful bird, and like the other members of this group is larger and handsomer than the male.

This variety undoubtedly breeds through a large part of its range. The nest is often placed in a tussock of grass near the water, the male incubating the eggs, both birds showing the utmost

concern if the nest is approached. When hatched the young are escorted to the water and they feed at its edge, often drifting out on to the surface of the pond, the very picture of grace and ease.

Generally the Wilson's phalarope is seen in small flocks of six or more, but occasionally in the fall it gathers in large numbers. Through July into August few of the prairie sloughs are without their little flock of these birds. As a rule they give no heed to man's presence, if approached floating lightly away. In August they begin to work their way south through the plains into Mexico and northern South America, even reaching the pampas of Brazil and Patagonia.

In eastern United States and on the Atlantic Coast the bird is exceedingly rare. There are a few New England instances: one is recorded of a male taken by Mr. George O. Welch at Nahant, May, 1874, and specimens were shot by Mr. William Brewster at Rye Beach in 1872.

CHAPTER IX

SHORE-BIRD SHOOTING (*CONTINUED*)

THE AVOCETS AND STILTS

(*Recurvirostridæ*)

One avocet and one stilt are found in North America; both are large birds. The former has the bill bent strongly upward toward the tip, moderately long legs, the anterior toes fully webbed, and a hind toe; the latter has a straight bill, exceedingly long and slender legs, very little webbing between the anterior toes, and no hind toe. Both agree in having very long and slender bills, the legs covered in front with hexagonal plates, and the anterior toes somewhat connected by membrane.

The family to which these birds belong is small, containing only about a dozen species, which inhabit chiefly the temperate zones of the world, Our species frequent the alkaline lakes of the western interior and are birds of much beauty. They often obtain their food in fairly deep water in which their long and slender legs enable them to wade, but they swim well if necessary, as do most of the shore-birds. They breed near the

shores of the lakes they frequent; but the female, as in the remaining families of the order, does at least her share of the incubation.

AMERICAN AVOCET

(*Recurvirostra americana*)

Adult male and female in breeding plumage — Head, neck, and breast, cinnamon, becoming white about the bill and fading below into the white of the under parts; wings, brownish, black on inner scapulars and lesser coverts; terminal half of greater coverts and inner secondaries, white; tail, gray; remainder of plumage, white; iris, red; legs and feet, pale gray; bill, black.

Adult male and female in winter plumage — Similar to the breeding plumage, but head, neck, and breast are white instead of cinnamon.

Young — Resembles the winter plumage, but the primaries are tipped with white; scapulars and back, mottled with buff; neck posteriorly tinged with rufous.

Measurements — Length, 18 inches; wing, 9 inches; culmen, 3.50 inches; tarsus, 3.75 inches.

Eggs — Four in number; light drab, with blotches of sepia-brown; oboval; measure 1.85 by 1.30 inches.

Habitat — Breeds in the interior of North America from western Kansas, New Mexico, Colorado, Utah, Nevada, and California, north to Idaho, Saskatchewan, Manitoba, North Dakota, and rarely Great Slave Lake. Winters from the coast of Louisiana, Texas, and southern California south to Central America and the West Indies. Not common east of the Mississippi River, but has been taken from Florida to New Brunswick.

The avocet is a westerner, frequenting the plains from as far north as Great Slave Lake, through the table-lands into Mexico. In Chihuahua, May, 1901, we found these birds in large flocks, often of several hundred individuals. Dabbling along

the shores of some mesa lake, they would rise in a cloud of black and white and settle on the flats at the water's edge, keeping just out of range, if unmolested feeding; some birds waded out the full length of their legs, while others more suspicious kept guard. Nearly all of them in full spring plumage, this congregation presented a splendid sight. When a flock was about to join those on the ground we heard their sharp, clicklike cries. In another instance, on a small spring hole near one of the ranches, I saw a single avocet among a large number of ducks. The bird was swimming out in the centre, in the midst of the others, when they rose, keeping in the flock. It had been in the vicinity a week.

In Colorado and Utah and about the Great Salt Lake the avocet is common both in the spring and fall on the migrations, and as a summer resident. If unmolested, the bird is gentle and tame, and can be readily approached. It is found along the borders of the larger lakes, feeding on the insects and larvæ abounding in the water near the shore. The alkali ponds of the Rocky Mountain states are favorite resorts, and the bird is common in southeastern Oregon and Montana, passing through Manitoba.

The avocet breeds through a large part of its range, selecting the marshes of the islands in wild desert regions, placing the nest in the tallest grass,

and constructing it of the same material. If disturbed on their nesting-grounds, the birds exhibit the greatest concern, feigning wounded and endeavoring to distract the attention of the intruder, or circling about on graceful wing, and uttering a peculiar sharp cry as they plunge through the air almost at him. The little chicks take readily to the water and are as much at home as ducklings, swimming and diving if occasion require.

On the Atlantic Coast the bird is rare, and more so now than formerly. Instances of its capture are recorded from Florida to the Bay of Fundy, where one was taken at Point Lepreaux. In New Jersey they were formerly taken, and a few even bred near Egg Harbor. Giraud speaks of its occasional occurrence on Long Island. In New England there are but few instances of its capture. Dr. Merriam speaks of a specimen taken near Saybrook from an old seine laid out to dry. Among other New England records are: Cape Elizabeth, Maine, November 5, 1878, and Natick, Massachusetts.

This bird is known as blue stocking and white snipe. The flesh is of a bluish color and hardly palatable.

BLACK-NECKED STILT

(*Himantopus mexicanus*)

Adult male in breeding plumage — Forehead, a spot behind the eye, lores, entire under parts, rump, and upper tail-coverts, white; rest of the head, neck posteriorly, back, scapulars, and wings,

glossy black, with a greenish reflection; tail, gray; bill, black; iris, red; legs and feet, lake-red.

Adult female in breeding plumage — Top of head, back, and scapulars, brownish slate, otherwise similar to the male; iris, reddish brown.

Young — Similar to the female, but the feathers of the back, scapulars, and tertials, bordered with buff; black on the head and neck finely mottled with buff.

Downy young — Above, light fulvous gray, mottled with dusky, and marked with black on crown, back and rump; lower parts, fulvous white.

Measurements — Length, 15 inches; wing, 9 inches; culmen, 2.50 inches; tarsus, 4 inches.

Eggs — Four in number; color, dark drab spotted with bistre; measure 1.73 by 1.20 inches.

Habitat — Breeds in Florida, the Bahamas, and probably the West Indies, and from northern California, Oregon, Nevada, Utah, Colorado, Kansas, and probably Idaho, south to Louisiana, Texas, and Mexico. Winters from the West Indies, Louisiana, Texas, and Lower California, south to northern Brazil, Peru, and the Galapagos. Rare east of the Mississippi north of Florida, but has been recorded north to Massachusetts and New Brunswick, and in Bermuda.

This graceful wader is common in the southwestern United States and from thence south through Mexico and Central America. In May, 1901, I met with the black-necked stilt near Tampico. They were in small flocks of from three to six individuals, and frequented the marshes along the lagoons where the grass was short, keeping near the edge of the water and showing no fear of the dugout as it was pushed quietly by. The birds stopped feeding and watched the craft, tilting their bodies exactly after the manner of the

yellowleg, finally taking wing and uttering a sharp, clicklike note. The flight was graceful, and in a line; the bright black and white of their plumage and their long red legs marked them afar. We saw repeatedly these small flocks, always a pleasing sight. Later in May they were common in Chihuahua on the larger lakes, frequenting the same places as the avocets, but as far as I could see keeping their own company. The stilt feeds on insects and larvæ, often wading into the water for its food. All of the few specimens shot showed evidence of approaching incubation.

This bird is common in the region of the Great Salt Lake on its migrations and as a summer resident, less abundant in southeastern Oregon. Marshes about the barren alkali lakes in this vicinity are its breeding-grounds. The nest is bulky, constructed of grass, and placed often in some wet spot, but built high enough up to keep the eggs dry. When disturbed under these circumstances they show the greatest anxiety, flying about close by, uttering pitiful cries of distress.

The stilt is found along the shores of the Gulf states where it breeds, and was formerly observed by Wilson in some numbers on the coast of New Jersey; but now is a rare straggler here, and is still rarer on Long Island and in New England. On the Pacific Coast the bird is uncommon. It is also known as white snipe, tilt, long shanks, lawyer.

CHAPTER X

SHORE-BIRD SHOOTING (*CONTINUED*)

WOODCOCKS, SNIPES, AND SANDPIPERS

(*Scolopacidæ*)

THIS is the largest family of the shore-birds, and to it belong most of the birds we see on the banks of our lakes and rivers, in our marshes, or on the flats left bare by the retreating tide. In the neighborhood of one hundred species are known, distributed in the migrations throughout the world, but the great majority breeding in the northern hemisphere and many within the Arctic circle. About forty-five species occur in North America and form the flocks that wheel, now dark, now bright in the sunlight, as in their migrations they pass along our coast, or fly from one feeding-ground to another. Most of the shore-birds interesting to sportsmen are found in this group, for to it belong the woodcock, snipe, yellowlegs, godwit, and curlew. Many of them occur on our coasts or about the marshes of the interior in large flocks during their migrations, and their flesh is tender and sweet.

They are rather small birds as a rule, having usually long and slender bills with the tip soft and fleshy. Several of the woodcocks, snipe, godwit, and sandpipers have the power of opening the tip of the bill while the base is closed. These birds bore in the soft mud for their food, and this faculty is doubtless of great service in enabling them to grasp a worm or similar object that the sensitive tip of the bill may touch. Others feed on small fish, insects, and minute life of various kinds that abounds at the water's edge. All are graceful birds of pleasing plumage, but few are brilliantly colored, and there is little difference in the sexes. They are swift on the wing, and many, even of the smaller species, travel remarkable distances during the year, breeding within the Arctic circle and wintering in Patagonia.

In most of this group the neck is rather long and the nostrils are narrow, opening in a groove on the side of the bill, which is also true of the phalaropes, stilts, and avocets. Their legs are covered with transverse scales in front, but their anterior toes are not bordered with a broad web, although a slight web is present in some species at the base. The hind toe is usually present. While agreeing in these respects, they differ in so many others that the species found in North America have been divided into nineteen genera.

EUROPEAN WOODCOCK

(*Scolopax rusticola*)

Male and female in breeding plumage — Upper parts, rufous mottled with gray, buff, and black; forehead, fore part of crown, chin, neck, and lower parts, buff-gray; crown and nape, crossed by four black patches separated by buffy lines; black line from bill to eye and another across ear-coverts; chin and throat, spotted with dusky, rest of lower parts barred with the same; wing-coverts and tertials, rufous, barred with grayish brown, and the latter blotched with black and tipped with light gray; primaries and secondaries, brown, barred on outer web and notched on inner web with gray and rufous; rump and upper tail-coverts, rufous, faintly barred with gray and buffy; tail, black, feathers notched with rufous on outer webs and tipped with gray above, silvery white below; bill, dusky brown, livid at base of mandible; feet and legs, grayish; iris, brown.

Winter plumage of adults — The same.

Young — Similar but darker; ashy spots on upper parts largely replaced by buff; rump and upper tail-coverts more conspicuously barred; outer webs of tail feathers less barred with rufous, gray tips margined proximally with buff.

Downy young — Rusty ochraceous; upper parts marked with spots of deep rusty, and a band of same on jugulum; blackish stripe from bill to eye.

Measurements — Length, 14 inches; wing, 7.35 inches; tail, 3.25 inches; culmen, 3 inches; tarsus, 1.50 inches.

Eggs — Four; rounded oval; buff, spotted with pale reddish brown and gray; measure 1.75 by 1.35 inches.

Habitat — Breeds in Great Britain, Scandinavia, Russia, Mongolia, and Siberia, north to the Arctic circle; in the Japanese mountains, Himalayas, Caucasus, Carpathians, and Alps, and in the Azores, Canary, and Madeira islands. Winters in Great Britain, southern Europe, northern Africa, east to India, China, and Formosa. Occurs in the Faroe Islands, and in North America has been reported from Newfoundland, Quebec, Rhode Island (?), New Jersey, Pennsylvania, and Virginia.

The habits of this bird are much like those of our own species. In England the fall "flight" occurs in October, and they return to their breeding haunts in March, laying their eggs in some retired spot in the woods in early April. Like our bird the female will remove her young if danger threatens, and has been watched flying with one of them clasped between her thighs.

The outbreak of a hard northeaster, after a few days of light southerly breeze, when the birds are moving south in autumn, often causes great numbers to stop on the small island of Heligoland, which is less than one mile square. Herr Gätke tells us that over 1100 woodcock were shot or netted there, under such conditions, on October 21, 1823. Many are snared there annually in large nets made for this purpose, which measure 36 to 72 feet in length and about 24 feet in height, the meshes being about $2\frac{1}{2}$ inches in diameter, so that the woodcock can easily get its head and neck through. These nets are set on poles, preferably between buildings or high bushes, and so strung that they can be dropped as soon as the bird becomes entangled. The woodcock's love of narrow passages leads it to the net, the gray of which in the early morning and the evening hours it does not notice as it passes across the island in migration, and sometimes even in bright daylight it continues its course until the meshes are around it.

AMERICAN WOODCOCK[1]

(*Philohela minor*)

Male and female in breeding plumage — Head, ashy rufous, marked with dark line on forehead from culmen, another from bill to eye, and on ear-coverts; occiput, black, crossed by three pale rufous lines; upper parts generally, pale rufous, barred with black and blotched with same toward ends of scapulars, interscapulars, and tertiaries, and many feathers tipped or barred with lavender-ash; primaries and secondaries, brown, the first three short and narrow, tipped with pale rufous, and inner secondaries vermiculated with the same; centre of rump and upper tail-coverts, black, vermiculated with rufous; sides of both, pale rufous, irregularly barred with black; tail, black, tipped above with gray, below with whitish, and spotted with rufous on outer webs; below, rufous, brighter on sides and flanks, washed with gray on breast, becoming buffy on chin and lower abdomen, and spotted with black on lower tail-coverts; bill, brown, yellowish at base of mandible, and tipped with black; feet and legs, pale reddish; iris, brown.

Winter plumage and young — Similar.

Downy young — Buff; crown and line from bill through eye, deep chestnut; rest of upper parts spotted with chestnut.

Measurements — Length, 11 inches; wing, 5.25 inches; tail, 2.25 inches; culmen, 2.75 inches; tarsus, 1.25 inches.

Eggs — Four; rounded oval; buff, spotted with brown; measure 1.50 by 1.20 inches.

Habitat — Breeds from northern Florida, Georgia, Mississippi, and Louisiana, north to Nova Scotia, the Gulf of St. Lawrence, Quebec, Ontario, and eastern Manitoba, and west to the Red River Valley, eastern South Dakota, Nebraska, Kansas, and eastern Colorado. Winters from New Jersey, southern Ohio, Indiana, Illinois, and Missouri, south to the Gulf Coast and west to Indian Territory and Texas, and occasionally north to Massachusetts and Michigan. Recorded doubtfully from Jamaica, Labrador, and California. Accidental at York Factory, Hudson Bay, and in Bermuda.

[1] The American woodcock is classed with upland game-birds and fully described in the "Upland Game-Birds" of this library.

EUROPEAN SNIPE

(*Gallinago gallinago*)

Plumage — Almost exactly similar to *G. delicata*, the distinction between the species being in the size. In the European variety the bill, tarsi, and toes are longer, the wing slightly shorter. The tail feathers are normally fourteen (sixteen in the American species), the bars on lateral tail feathers are fewer in number and feathers broader, and the white generally predominates on the under wing-coverts and axillars — the reverse obtaining in *G. delicata*.

Downy young — Bright chestnut, spotted or striped with black on back, below eye, on throat and fore-neck; line of white below eye and much of the down above tipped with silvery white.

Measurements — Length, 10.50 inches; wing, 5.15 inches; bill, 2.90 inches; tarsus, 1.25 to 1.50 inches; middle toe, 1.30 inches.

Eggs — Four; grayish yellow, spotted and patched with brownish gray; measure 1.60 by 1.10.

Habitat — Breeds throughout northern Europe and Siberia to about 70° north latitude, in Iceland and probably Greenland, and south in mountain ranges to the Alps, southern Russia, Turkestan, and southern Mongolia, and is said to breed in Algeria. Winters in Great Britain and south to the Mediterranean, west to the Azores, south in Africa to Gambia and Somaliland, the northern shores of the Indian Ocean, the Philippine Islands, and China. Has occurred in Bermuda.

This snipe is found throughout the northern parts of the Old World, and closely resembles the American variety in habits and appearance. It has been found in considerable numbers in Greenland and has straggled to Bermuda. In North America it has never been taken.

On Bering Island the English snipe is a tolerably common summer resident, breeding on the low, swampy tundra; and in the beginning of

the breeding season its "bleating" is a frequent sound during the morning hours. At this time the male flies up, slantingly, in the air, with rapidly beating wings, uttering his shrill note until he reaches a height of about 1000 feet, when he twists and wheels in irregular course, calling a loud, shrill *zoo-zee;* then he darts for earth in headlong flight, making a noise that some have likened to distant thunder, and others to a bleat.

WILSON'S SNIPE

(*Gallinago delicata*)

Adult male and female — Bill, long, flattened, and slightly expanded at the tip, punctulated in its terminal half; top of head and entire upper parts, brownish black, each feather spotted and edged with light rufous; back and rump, barred and spotted in the same way; a stripe over each eye and on top of head, buff; neck, buff, marked with fine black spots or lines; wing feathers marked with brownish black; other under parts, white, with dusky transverse bars on the sides, axillary feathers, under wing-coverts, and tail-coverts; quills, dark; tail, soft brownish black, tipped with bright rufous, and with a subterminal narrow band of black; tail, consists of sixteen feathers; bill, legs, and feet, greenish gray; iris, brown.

Measurements — Length, 11 inches; wing, 5.50 inches; tail, 2.25 inches; bill, 2.50 inches; tarsus, 1.25 inches.

Young — Plumage closely resembles the adult, but the breast is lighter, not as closely mottled and lined.

Eggs — Four in number; pyriform in shape; ground color, light olive, dotted with small dark spots, largest and most abundant at the broad end; measure 1.50 by 1.18 inches.

Habitat — Breeds from Maine, rarely Massachusetts, Connecticut, and New York, Ohio, Indiana, Illinois, Minnesota, North Dakota, and Oregon, south in the mountains to Pennsylvania, Colorado, Utah (?), Nevada, and northern California, north to

northern Labrador and the Arctic Coast, from Fort Anderson to Bering Straits, and possibly in Greenland. Winters from North Carolina, casually north to Massachusetts and Nova Scotia, Indiana, Illinois, Nebraska, Colorado, Wyoming, Arizona, and British Columbia, south to the Bermudas, Bahamas, West Indies, Mexico, Central America, and Brazil. Recorded from Great Britain and Hawaii, and from Texas in summer.

The best-known and most popular of all our shore-birds, generously distributed over the marshes of the interior and along the coast, from as far north as the Arctic regions to the West Indies and northern South America as a southern range. There are few more welcome sounds than his creaking note as he jumps from your very feet in zigzag flight. Whatever else you have in mind vanishes. You watch him until a speck, still circling around, uncertain where to drop; now he settles, the spot is marked, you approach carefully, watching every tussock in the bog, knowing he is not ten feet off, yet feel he will startle you just as much as he did at first, and wish he would hurry up and jump and be done with it; but he takes his own time and probably waits until you have walked over him before he repeats the trick of twisting himself out of range.

The Wilson's snipe is as erratic as his flight. To-day you see him, to-morrow you don't. His frequent borings in the soft mud are perhaps the only trace of his previous presence. Here he

thrust in his bill its full length and fed on little worms and grubs, a diet that makes his flesh the finest of the fine. The flexible tip of a snipe's bill enables the bird to feed at the depth of its boring without bringing the bill to the surface. Our associations with this bird are as pleasant as they are varied. The marshes along our coast, the inland bogs, and the prairie sloughs are among the recollections. Possibly we took the unfair advantage of a dog, for snipe usually lie well; this, however, in locations where they abound is often unnecessary. We look for them on the salt marshes, where there is tender green grass, near little springs. Here their borings betray them. On the larger meadows usually snipe are found in some one particular spot, and this they regularly frequent during their visitations; rarely you see one on the ground crouching with bill outstretched in perfect harmony with the surroundings. They should be hunted down wind, for then the bird gives a cross shot as it rises. Experience teaches the gunner to wait until the snipe has ceased its twisting and settled down to steady flight, when it is readily shot. The Wilson's snipe is nocturnal in its habits and migrates at this time; just at dusk they become active, and we often see them darting from one marsh to another, in search of a spot to feed. The birds are not partial to cold weather, and the

AMERICAN OR WILSON'S SNIPE

first frosts start them along. They scatter over the South, and we find them broadcast on the rice-fields of the interior and the swamps throughout the Gulf states, or close to the coast, wherever their happy-go-lucky flight may chance to land. Northern South America and West Indies see them in winter, and also Mexico and Central America. The migration north begins in April, and the snipe drop into the same little nooks year after year, staying a day or two, then pushing on. While occasionally this species nests within our boundary, the breeding range is farther north, and the large body pass into the Canadian provinces, selecting the marshes on the mainland and the islands about the Gulf of St. Lawrence, the northern coast through Labrador and the interior to Hudson Bay, and on the west to Alaska.

A fresh-water marsh is the site generally chosen, and the nest is placed in a tussock of grass, likely near a clump of trees. It is a mere depression, lined with a few dead leaves. June is the incubation month. During the mating season the snipe changes its habit and becomes very active, often being long on the wing. Both sexes mount high in air and perform curious evolutions, twisting and turning about, finally dropping down a hundred feet or more, the rushing of their wings causing a peculiar roaring sound. The birds

are often seen perching on trees and bushes in the vicinity of their nest. The young are covered with whitish down, and run soon after they are hatched, hiding quickly at the approach of danger. At first feeding on little larvæ, worms, and grubs, on the surface, they soon learn the art of boring. The little family remain together through the summer months, and early in September congregate in flocks. When startled they do not often take flight all at once, like the other Limicolæ, but in small bunches. With the generous distribution of the Wilson's snipe, and breeding-grounds secure in the bogs and morasses of the North, it would seem as if this bird might be spared for his friends; but the inevitable threatens him, and now along our eastern coast the old-time haunts are poorly patronized.

GREAT SNIPE

(*Gallinago major*)

Male and female in breeding plumage — Upper parts, black, mottled and barred with sandy buff; scapulars, bordered with whitish; rump and upper tail-coverts, sandy buff, barred with dusky; tail-coverts, tipped with whitish; wing-coverts, bordered with whitish, and inner, with black subterminal bar; primaries and secondaries, dark brown, the latter tipped with white; tail, rufous, barred with black and tipped with white, the white tips increasing until the four outer tail feathers are chiefly white; centre of crown, superciliary line, and sides of face, whitish; rest of crown, line from bill to eye, spot on ear-coverts and on the feathers of face, black; hind neck and sides of neck, sandy buff, streaked with dusky; chin, breast, and abdomen, white;

neck, upper breast, and under tail-coverts, sandy buff, the neck and breast spotted, flank and tail-coverts barred with blackish; under wing-coverts and axillars, white, barred with black.

Winter plumage — Sandy buff more pronounced, buff edges to feathers above broader and blackish markings on neck larger; otherwise similar.

Young — Much more rufous than adults; the black above more uniform and the pale tips to the scapulars and wing-coverts less distinct; the inner, greater wing-coverts and inner secondaries, barred with black and rufous; the sides of head and hind neck more rufous, and the white breast and white tail feathers, barred with dusky; bill, brown; feet and legs, light slate; iris, brown.

Downy young — Above, ashy fulvous becoming rufous on crown, centre of back and wings; striped with black on forehead, crown, lores, sides of head, back, and flanks; superciliary line, side of head, centre of breast and abdomen white; rest of lower parts, orange-buff.

Measurements — Length, 11 inches; wing, 5.50 inches; tail, 2 inches; culmen, 2.50 inches; tarsus, 1.30 inches.

Eggs — Four; olive-gray, spotted with pale purplish and purplish brown; measure 1.65 by 1.15 inches.

Habitat — Breeds from Prussia, Poland, Russia, and Siberia, west of the Yenesei River, north to beyond 71° north latitude. Winters from the Mediterranean to South Africa. Occurs in migration from Persia to Great Britain and has been recorded from Madeira. A skin in the British Museum was taken in Hudson Bay before 1830.

This is a solitary bird not found in flocks except in the beginning of the pairing season, when the males meet to "drum," Professor Collett says, and sometimes to fight for the females. At this time eight or ten birds will collect toward dusk at some damp place in a marsh, where there is water between the tussocks, and spend most of the night in displaying the beauty of their voices and their

plumage to the females. A male seated on one of the tussocks gives first a whistling note, then a snapping of the bill several times, this followed by a hissing, and the last by a gradually deepening *sbirrrr.* As he makes these notes, the bird seems in an ecstasy, rising and spreading the tail like a fan. When two males approach they strike feebly at each other for a few minutes with their wings, but soon realize their charms are better fitted for display than for combat.

The eggs are laid on a few grass stems in a slight hollow of the marsh near some tussock.

RED-BREASTED SNIPE

(*Macrorhamphus griseus*)

Adult male in breeding plumage — Head, neck, and lower parts generally, light cinnamon, becoming white on the abdomen; breast and sides, mottled and speckled with brown; head and neck, streaked with the same; upper parts, black, mixed with light brown and white; rump and upper tail-coverts, white, spotted with dusky.

Female — Resembles the male, but is larger, and the speckling on the breast is finer.

Winter plumage — Belly and under parts, white; rest of plumage, uniform gray, mixed somewhat with white on the breast and sides; a faint white stripe over the eyes.

Young — Head, neck, and upper parts, varied with black and light brown, the latter on the edges of the feathers; lower parts, dull white, marked with buff, especially on the breast; throat and sides, indistinctly speckled with dusky; iris, brown; bill and feet, olive.

Measurements — Length, 11 inches; wing, 5.75 inches; culmen, 2.25 inches; tarsus, 1.32 inches; middle toe, 1 inch.

Eggs — Four in number; color, rufous drab blotched with dark brown; measure 1.60 by 1.10 inches.

Habitat — Breeds in Labrador, northwest possibly to Fort Anderson and probably north to Greenland, and is said to have bred south to Lake Superior and in Newfoundland. Winters from Florida, Louisiana, and the West Indies to Brazil. In migrations formerly abundant, now tolerably common, on the Atlantic Coast of the United States. Occurs in Ohio, Indiana, and Illinois, and has been reported from Nebraska, Idaho, Oregon, and Lower California, and is said to be a non-breeding resident in Louisiana. Of occasional occurrence in Great Britain, France, Alaska, and Bermuda.

The common names for this bird along the Atlantic Coast are dowitch, or dowitcher, brownback, and grayback. It is distinctly an eastern bird, but is often confounded with the long-billed dowitcher, the western variety. The red-breasted snipe early reaches the coast from its haunts in the North. By the last week in July the first birds appear, and it is most abundant from this time until early in August. Gentle and unsuspecting, the dowitcher has paid the penalty of a confiding nature, and the flocks at the present time along the favorite flats and marshes of our eastern coast are few and far between. This bird recalls a morning several years ago in late July. It was on Shinnecock Bay, and we left for the one good point long before dawn; the path lay just inside the dunes, and in the quiet of early morning the mosquitoes seemed in clouds, without a breath of air to stir them. Four miles of

this to the only blind. We finally reached it, lucky to find no market hunter had camped there the night before. The decoys were set, and we waited for daylight. The morning at last broke cloudy. Soon the first bird, a single brownback, appeared over the water, heading for the flat and the decoys at its edge. He dropped among them and for a time refused to fly, watching first the blind and then his wooden companions. Presently a flock followed his course, their graceful, compact flight distinguishing them at a distance. They hovered over the decoys, bunching up close together, and hardly a bird escaped the raking shots. The few that did, returned again, loath to leave their dead and wounded. The wind now freshened and for a few hours there was a pretty flight, small bunches following each other at short intervals, coming out of the east, heading for the points in the same direction. By noon they had stopped, and we counted a bag of some two dozen birds.

The dowitchers feed on the flats along with the other shore-birds, but are the last to leave when the gathering is disturbed. Animalculæ and worms comprise their food, and on this diet they become fat and are excellent eating. The birds follow the receding tide, and when high water drives them from the flats seek the higher bars and marshes. South of Long Island this

species becomes more abundant, numbers stopping on the marshes of Virginia and North Carolina that have passed the more northern feeding-grounds. The red-breasted snipe visits the West Indies and northern South America, where it winters. In the spring many return along the Atlantic Coast, but a large body probably follow the more direct route through the interior. Early in May I have seen them near the Chesapeake in large flocks, often of several hundred individuals. The note of this bird is a plaintive whistle, not unlike the yellowleg's, but quick and sharp, and it will generally readily respond. The far Arctic regions, from the mountains eastward, are the breeding-ground, and June is the time for incubation. Nests found by MacFarlane at Fort Anderson were situated on the borders of small lagoons. The eggs were deposited on decayed leaves, placed in slight depressions on the mossy ground. In the breeding season the note of this bird is modified and is said to resemble the song of a land-bird, both male and female going through queer evolutions of flight. The young are fledged in July and left by the old birds to find their way south and encounter the dangers that beset the course, unaided. The first flocks of young red-breasted snipe arrive off Cape Cod and Long Island early in September. They are even more readily killed than the adults, and but small proportions escape

the gunner's gantlet. In the fall the plumage of this bird takes on a gray appearance, and on this account it is called grayback along the southern shores, though dowitch, dowitcher, and red-breasted snipe are the more common names.

RED-BELLIED SNIPE

(*Macrorhamphus scolopaceus*)

Adult male in summer — Top of head and back of neck, cinnamon, streaked with black, a superciliary line of buff; back and wings, black; feathers margined with reddish brown and white; rump and upper tail-coverts, white, barred with black; throat, light buff; front and sides of neck, cinnamon, mottled with brown; entire under parts, cinnamon spotted with dusky on breast and sides; central tail feathers, black, barred with white and buff; remainder dark brown, barred with white; iris, brown; bill, legs, and feet, olive-green.

Female — Closely resembles male, but is larger.

Adult in winter — Head, back, and wings, gray, mixed with dark brown; feathers on wing-coverts, edged with light brown; lower back, rump, tail-coverts, and tail, as in summer, but without any buff markings; throat, white, faintly streaked with dusky; neck and breast, brownish gray.

This species is distinguished from the eastern variety by its slightly larger size and longer bill. In the adult plumage the breast markings are less numerous and have the appearance of being barred rather than spotted; the cinnamon extends over the entire abdomen, and the upper parts are more highly colored.

Eggs — Resemble the eggs of *M. griseus*, already described; measure 1.80 by 1.25 inches.

Habitat — Breeds in northeast Siberia and on the coast of Alaska from the Yukon Delta to Point Barrow and the Anderson River, and probably south to northern British Columbia. Winters in Florida, Louisiana, the West Indies, Mexico, and probably Central and South America, and is said to be a non-breeding resident in Louisiana. In the migrations is most common in

the United States in the western Mississippi Valley, occurring regularly west to the coast of British Columbia, the interior of California, and Lower California, and frequently reported east in the fall along the entire Atlantic Coast. Probably many of these Atlantic Coast records properly refer to large females of *M. griseus*.

The western representative of the red-breasted snipe, this bird straggles to the Atlantic Coast, and there are a number of instances of its occurrence on Cape Cod and Long Island. The close resemblance to the eastern variety undoubtedly causes it often to pass unnoticed. The western dowitcher is found abundantly in all the prairie states and on the Pacific Coast south of British Columbia. They are common on the ponds and prairie sloughs of Dakota and Montana in May, occurring in flocks of eight or a dozen, wading around in the shallow water to the depth of their long legs, probing the bottom for food. A short sojourn under these circumstances enables them to rest and fatten. The journey north is made in more of a hurry than the return trip, and the birds reach the breeding-grounds in poor condition. These are in Alaska on the marshes about the Yukon and the shores and islands to the north. At this time they are very active in their courting, and the male noisy and demonstrative, disputing the possession of the female. When once their variances are settled, each pair takes up the duties of nesting. This

species has many of the habits of the red-breasted snipe, going through the same peculiar evolutions in its mating season. According to Nelson, several males will chase a female through the air in rapid twisting flight, pausing often to utter a harsh *péet-û-wéet*, then continuing the pursuit. When mated the male, hovering fifteen or twenty yards from the ground, on quivering wing, pours forth a lisping but musical song, imperfectly expressed by *péet-peet; pée-ter wée-too; wée-too.* The nest is a little hollow on the ground, and the eggs are four in number. Late in July the birds are seen on their return trip along the same migratory courses followed in the spring. Arriving on the California coast, the flocks frequent the shallow flats and marshes, where many are killed. I saw them in numbers on the shores of the small lakes, scattered at long intervals throughout the plains of northern Mexico, in flocks of ten or fifteen and in company often with the teal and shovellers; gentle and not annoyed by our approach, they fed together unconcerned, wading deep into the water or dabbling at its edge. When we came a little too close they ran together and stood motionless in a compact little bunch. The flight was in the same close array, and few would have escaped a shot. On the wing occasionally their note was heard, a whistle, which was quickly responded to. The birds circled and returned,

settling within close range; although in late April the winter plumage was still in evidence, the summer dress was beginning to be assumed.

STILT SANDPIPER

(*Micropalama himantopus*)

Adult male and female in breeding plumage — Front and top of head, black, streaked with buff, feathers tipped with rufous; a stripe from bill to eye and ear-coverts, rufous; neck, white, streaked with dusky; back and upper parts, black, variegated with gray and buff; wings, dark gray; primaries, slate; rump, gray; upper tail-coverts, white, the larger ones barred with dusky; middle tail feathers, light gray, the others varied longitudinally with white and gray; lower parts, light buff; throat and breast, streaked, the other portions closely barred with dusky.

Adult in winter — Top of head, back, sides of neck, gray; superciliary stripe and under parts, white, streaked with gray on neck, breast, and lower tail-coverts.

Young — Top of head, brownish, streaked with buff; neck behind, gray; back and scapulars, blackish, feathers bordered with buff; wing-coverts bordered with buff and white; upper tail-coverts, white; lower parts, white, the breast and sides suffused with buff; breast, sides of the neck, and flanks, slightly streaked with gray; iris, brown; feet, yellowish green; bill, black.

Measurements — Length, 8 inches; wing, 5.25 inches; culmen, 1.50 inches; tarsus, 1.50 inches.

Eggs — Three or four in number; ground color, light drab, with large round markings of dusky, most numerous about the large end; measure 1.50 by 1.05 inches.

Habitat — Breeds on the shores of Franklin Bay and probably south to Hudson Bay. In migrations tolerably common on the Atlantic Coast in fall, rare in the spring; more common in the western part of the Mississippi Valley and casually west to British Columbia, Wyoming, and Colorado, and east to Bermuda. Passes south in winter to the West Indies and through Central America to Argentina, Chili, and Peru.

This species is nowhere found in large numbers, but is a regular migrant along the Atlantic Coast, arriving early, often accompanying the first flights of lesser yellowlegs. Long Island is a favorite resort for the stilt sandpiper, and it here goes by the name of bastard on account of the former belief that it was a hybrid. These birds are taken most abundantly in the last few days of July and early August. I have seen them at this time in small flocks, but usually alone or in twos or threes. They have much the same flight and appearance at a short distance as the summer yellowlegs, though a perceptibly smaller bird. The note is not often uttered, but they are readily persuaded to drop into decoys at the invitation of the yellowlegs' whistle. I have never killed more than five or six of these birds in a morning's shooting, but have been informed by the gunners that occasionally there is a regular flight lasting a day or so, when considerable numbers are seen and killed. Rarely flocks of some size are noticed. These are all adult birds, the young following three weeks or more later, and are found under the same circumstances and in about the same numbers late in August. North of Long Island the stilt sandpiper is rare. On Cape Cod it is seldom killed. Several instances of its occurrence near Halifax have come to my attention, and I believe the bird regularly appears in this vicinity and on the

islands in the Gulf of St. Lawrence, probably about the middle of July, and the early date of its passage south is doubtless a reason why more have not been taken. Late in August, 1894, I shot a number of young stilt sandpipers near Cooperstown, North Dakota. They were in a considerable flock on the edge of a small pond. In the spring these birds are very seldom seen on the Atlantic Coast of the United States, their migration being along the Mississippi Valley and to the west. While shore-bird shooting on Broadwater Bay, Virginia, in May, 1896, I took a single specimen of this bird; it was the first the gunners there had seen in the spring. There are also a few instances of the bird being taken on Long Island and in Connecticut in late May and early June. MacFarlane found this species breeding at Rendezvous Lake, and it was tolerably common at Franklin Bay. He obtained the eggs now in the Smithsonian Institute. The nest is placed on the ground and lined with leaves and grass.

KNOT

(*Tringa canutus*)

Adult male and female in breeding plumage — Head and upper parts, pale gray, variegated with black and reddish; rump and upper tail-coverts, white, barred with black; superciliary stripe, throat, breast, and sides of abdomen, light cinnamon; lower abdomen, pure white; under tail-coverts and flanks, white, spotted with black; iris, brown; bill, legs, and feet, black.

Adult male and female in winter — Top of head and neck, dark gray, streaked with white; upper parts, back, and scapulars, gray, feathers tipped with white; under parts, white; sides of face, neck, and breast, striped or barred with gray.

Young — Above, light ashy gray, darkest on the back, each feather bordered with white, with a dusky edge; upper tail-coverts, white, marked with dusky; lower parts, whitish, becoming pure white on the abdomen; neck and breast, marked with streaks and flecks of dusky; an indistinct, light superciliary stripe.

Downy young — Buff to cream color, marked above with black and rufous, the black markings exceeding the ground color on crown, back, and rump.

Measurements — Length, 10 inches; wing, 6.50 inches; tail, 2.50 inches; bill, 1.50 inches; tarsus, 1.25 inches.

Eggs — Probably four in number, resemble a snipe's, and measure 1.60 by 1.10 inches.

Habitat — Breeds in northern Greenland, Grinnell Land, Melville Island and Peninsula, and possibly in Iceland and near Point Barrow, Alaska. Winters from southern Florida and the West Indies to Trinidad, French Guiana, and Brazil. In migrations formerly abundant, but rapidly becoming rare on the Atlantic Coast of North America, rare in the interior, and very rare on the Pacific Coast, except possibly in British Columbia. In the migrations the knot occurs throughout most of the eastern hemisphere, but does not breed, unless in Iceland. Winters from the coast of the Mediterranean to South Africa on the Atlantic; in India, Australia, and New Zealand.

The red-breasted sandpiper has a world-wide distribution and is a universal favorite among our shore-birds. In this country it goes by many different names; the usual ones are knot, robin-snipe, Maybird, red-breasted plover, robin's breast. Its common range is along the Atlantic Coast; but the bird is occasionally taken in the interior, and has been found on the Pacific Coast of Alaska.

As it breeds in the remotest Arctic regions, its nest has seldom been taken. An egg from Fort Conger, latitude 81° 44″, was brought to Washington by Lieutenant Greely.[1] It was light pea-green, closely spotted with small specks of brown, and measured 1.10 by 1 inches. The knot has been seen breeding on the North Georgian Islands and the Melville Peninsula. The eggs are placed in a depression on the ground or in a clump of grass. "When courting, these birds play with each other on the wing and upon the ground, in the most interesting manner, pursuing, avoiding, and encouraging one another; while the clear, sweet, flutelike whistle of the male is frequently heard." When the young are hatched both parents go through the usual "wounded-bird" manœuvre to draw attention from their young. The adult birds appear on the Atlantic Coast of the United States early in August and are most abundant, perhaps, about the tenth of the month; but the full, ruddy plumage of the spring is faded, and the paler winter dress is more or less evident

[1] The egg taken at Fort Conger, Mr. Seebohn believed to be wrongly identified on account of its small size, and that it was rather an egg of the semipalmated sandpiper, which "it exactly resembles in size and color." But it is stated that the parent was taken with this egg. An egg, now in the British Museum, believed to belong to this species, is one of a set of four procured with the parent bird, near Disco, Greenland, in 1875. This egg resembles that of a snipe, and measures 1.60 by 1.10 inches.

in the gray and white feathers of the back and breast.

The robin-snipe frequent the larger lagoons and feed on the outer sand-bars, seldom coming on to the marsh. The birds are usually seen in small flocks and keep to themselves, or occasionally feed with the blackbreast. The flight is speedy and graceful, and they often close up in a bunch when suddenly startled. Quickly fattening on their summer diet, the flesh is as delicate as that of the golden plover. In most of the resorts for shore-birds along our eastern shores this bird is a short sojourner, and, undoubtedly, many of the flocks in calm weather keep out to sea, trusting no longer the favorite haunts of the past. The flight of the young birds occurs late in August and lasts into September. These are tame and gentle, and are readily shot as they huddle together over the decoys, often returning to hover over their wounded.

The robin-snipe is generally a silent bird, but sometimes its call is heard,— a mellow, low-pitched whistle, readily responded to if well imitated. One of my pleasant recollections of shore-bird shooting is associated with this bird. I give the date with some hesitation, for it was May 10, near Cobb's Island. During several days previous red-breast had been flying, but the tides were not suitable, and it was useless to try for them. Here

the flight is along the outer beach, at the edge of the surf, the birds stopping to feed on the mud flats exposed by the falling tide. The sun was not up and the water still high as we set the decoys off one of the points along the beach, close to the breaking waves; the blind was of seaweed, and before we were settled the first flock passed by high up, but a pair of birds dropped out of it and hovered in front of us; another minute and ten more swung in. Flock after flock, from a few birds to hundreds, passed in the same line, coming into sight over the ocean, striking the beach and following its edge, — now low just over the surf, now high up, — the first light of sunrise giving them a black appearance. The undulating character of the flight was unmistakable and was in evidence when the dark line first appeared — now distinct on the horizon, presently out of sight in the waves, all of a sudden rising up over the decoys to circle in. Our chance lasted only a few minutes, for when the flat was exposed the birds all passed by out of range; occasionally we whistled in an odd one, but the flocks shied off. As we carried back our basket of birds it did not occur to us that the experience of that morning would be our last flight of redbreast, but it was.

Since the spring of 1898 this bird has decreased remarkably along the Atlantic Coast, and, with the present ravages of spring shooting in Virginia and

North Carolina, a beautiful shore-bird will soon become rare.

After leaving the shores of Virginia not many at present appear on Long Island, or even Cape Cod, and in fair weather the body undoubtedly keep out to sea, stopping on the islands in the Gulf of St. Lawrence as their next resting-place, then proceeding north along the coast.

Four eggs identified as those of the knot, the parent of which was seen but not collected, were taken in Iceland in 1890. These eggs are said to be unlike those of any other sandpiper, having an emerald-green ground color, which is covered rather closely and uniformly with small reddish spots. The measurements of these eggs are not given, but a plate indicates that they are about the size of those of a killdeer or Wilson's snipe.

PURPLE SANDPIPER

(*Tringa maritima*)

Adult male and female in breeding plumage — Top of head, neck, back, blackish brown, feathers edged with chestnut or buff; wings, grayish brown; coverts tipped with white, forming a bar across the wing; rump, upper tail-coverts, and central tail feathers, dark brown; lateral tail feathers, light brown; an obscure superciliary white streak; throat and jugulum, white, streaked with brown; breast, gray, tinged with rufous, the feathers tipped with white; the rest of under parts, white, streaked on flanks and under tail-coverts with pale brown; bill, dark brown; legs and feet, yellowish; iris, brown.

Adult male and female in winter — Upper parts, black, with a purple gloss, feathers tipped with gray; head, lead-gray; throat,

white; breast, gray, tinged with darker; under parts, white, streaked on flanks and under tail-coverts with dusky brown; the plumage lacks entirely the chestnut and brown of the spring.

Young— In the young the feathers of the back are tipped with white in winter plumage.

Downy young— Hair brown above, becoming grayish white on head; spotted with black on head, lores, back, wings, and flanks, and with white or golden yellow on back, wings, and rump; lower parts, grayish white.

Measurements— Length, 8.50 inches; wing, 5 inches; culmen, 1.20 inches; tarsus, .90 inch; tail, 2.50 inches.

Eggs— Four in number, pale brownish buff, mottled with dark brown, and measure 1.50 by 1 inches.

Habitat— In North America, breeds in Greenland, Cumberland, Melville Peninsula, northern shore of Hudson Bay and probably west to Herschel Island, and is said to have bred in Vermont. Winters in southern Greenland and probably Labrador, and from Nova Scotia south regularly to Long Island, New York, and irregularly to Bermuda, Florida, the Great Lakes, and upper Mississippi Valley to Missouri. In the eastern hemisphere, breeds in Norway, northern Russia, and northwestern Siberia, Nova Zembla, Spitzbergen, Iceland, and the Faroe Islands. Winters in Norway, Iceland, the Faroes, Great Britain, and south to the Mediterranean, and has been recorded once from South Africa.

A bird of the remote North, the purple sandpiper comes within our boundaries only in the coldest weather. In Maine and New England, these birds arrive in December and frequent the rocks and rugged beaches along the wildest part of the coast, occasionally in flocks of some size; but as a rule they are seen in twos and threes and often alone. The purple sandpiper is exceedingly gentle and pays no attention to man's presence, searching intently for its food among the rocks left

bare and wet by the falling tide. All winter long they stay braving the cold and hardest weather.

While duck-shooting on the small rocky islands in Long Island Sound I have often watched the bird a few feet off, indifferent to all danger, picking among the barnacles, occasionally uttering its soft note as it took to wing. I shot one under these circumstances in early May with a few of the spring feathers noticeable in its plumage. Usually with the first indication of ending winter they are on their way north, following the coast to the breeding-grounds in the Arctic regions, — here visiting Iceland, Greenland, Spitzbergen, and Nova Zembla. June is the time for incubation, and the nest is placed on elevated ground in some slight depression, lined with moss or grass. Only in the breeding season does it leave its loved rocky shores and seek the borders of some fresh-water lake to rear its young, returning as soon as possible to the ocean's roar. At this time the males gave a cry like that of the Bartramian sandpiper, but lower and shorter, strutting and elevating the wings while uttering this note. In its breeding plumage the purple sandpiper is seldom seen. The birds remain north until late fall, and even winter in Greenland in some numbers, huddling together on protected ledges and fissures of the rocks for protection, when threatened with heavy weather.

While most common along the coast, it is found through the Great Lake region and has even occurred in Missouri. It is not found on the Pacific Coast.

ALEUTIAN SANDPIPER

(*Tringa ptilocnemis couesi*) [1]

Adult male and female in breeding plumage — Above, slate, the feathers of the dorsal region widely bordered with bright cinnamon, in the centre, black; wing-coverts, bordered with white; greater coverts tipped with white, forming a bar across the wing; rump, upper tail-coverts, and middle tail feathers, dusky; a white superciliary stripe extending to the back of the neck; neck, jugulum, and breast, grayish white, or buff, spotted with slate; remaining lower parts, pure white; iris, brown; bill, legs, and feet, greenish yellow; end of bill, dark.

Adult male and female in winter plumage — Above, soft smoky gray, with a purplish gloss; scapulars and interscapulars, bordered with slate; head and neck, uniform plumbeous, except the throat, which is streaked with white; jugulum, scaled with white; breast more broadly marked in a similar way.

Young — Scapulars, interscapulars, and crown, black, bordered broadly with brown or buff; jugulum and breast, pale buff or buffy white, streaked with dusky.

Downy young — Similar to *T. maritima*, but more rufous above, becoming light fulvous on head; white markings larger; sides tinged with fulvous.

Measurements — Length, 8 inches; wing, 5 inches; culmen, 1.25 inches; tarsus, 1 inch.

Eggs — Pale olive-buff, spotted with umber-brown; measure 1.46 by 1 inches.

[1] A series of sixty-three specimens, almost all young birds, which I collected at St. Michael, Alaska, and Unalaska, in September and early October, 1899, show a complete intergradation, both in size and color, from birds thoroughly typical of *T. couesi* to others indistinguishable from *T. ptilocnemis* taken in the Pribilofs. — L. B. B.

Habitat — Breeds on the Shumagin, Aleutian, and Commander islands, and probably on the Kuril Islands, and possibly on the coast of northeastern Siberia and northwestern Alaska; wanders northward in late summer and early fall, to the Alaskan coast of Bering Sea and through Bering Straits into the Arctic Ocean, to Kotzebue Sound, Alaska, and Plover Bay, Siberia. Winters on the Commander, Kuril, and Aleutian islands, Kadiak, and the coast of Alaska, south of Sitka.

The resemblance between this bird and the purple sandpiper is so close that distinction in the winter plumage is made with difficulty. A careful comparison shows less of the purple gloss on the back, and the fore neck streaked with white in the western variety. It is common on the Aleutian Islands and the coast of Bering Sea, also on the Siberian shore. These birds have all the habits of the purple sandpiper, frequenting the rocky portions of the coast. When storm driven, they seek the shelter of the smaller bays, congregating in large flocks, allowing easy approach. On the Commander Islands they are found throughout the year. In the spring the flocks break up and the birds pair, selecting a nesting-place, which is on the ground, often in a tussock of grass not far from the water.

At the beginning of the breeding season the male Aleutian sandpiper, rising on quivering wings from the mossy tundra, utters a loud, melodious twitter, almost a song, settling with outstretched wings as the notes die away; then seated

on a tussock, quivering with excitement, its wings hanging, it "bleats" like the Wilson's snipe.

PRIBILOF SANDPIPER

(*Tringa ptilocnemis*)

Adult male and female in breeding plumage — Similar to *T. maritima*, but larger, and lighter in coloring; back and scapulars, light clay color, centre of each feather black, their tips whitish; rump and upper tail-coverts, slate, feathers with lighter tips; wings, plumbeous, the coverts bordered with grayish white; greater coverts, broadly tipped with white; several of the inner secondaries, pure white; primaries, slate, with white shafts; pileum, light fulvous, streaked with dark; back of neck, the same color, mixed with gray; rest of head, including a superciliary stripe and entire lower parts, white; jugulum, streaked with dusky; breast, marked with dusky blotches; flanks and under tail-coverts, narrowly streaked with dusky.

Adult male and female in winter plumage — Wings, rump, tail-coverts, and tail, and posterior lower parts, as in summer; remaining upper parts, light gray; the feathers of the back, dark in the centre, with a faint purplish gloss; head, light gray; throat, white; jugulum and breast, white, irregularly marked with pale gray; the upper parts are much lighter than in *T. maritima*.

Young — Similar to the summer dress of the adult, but the wing-coverts are widely bordered with buff, as are the feathers of the head and neck; jugulum, light buff, marked with streaks of gray; bill, feet, and legs, yellowish green; bill, tipped with dark; iris, brown.

Downy young — Similar to *T. pt. couesi*, but paler; dark markings on lores smaller.

Measurements — Length, 9.50 inches; wing, 5.25 inches; culmen, 1.25 inches; tarsus, 1 inch.

Eggs — Four in number; olive-yellow, with numerous large spots of dark brown; measure 1.55 by 1.10 inches.

Habitat — Breeds on St. Matthew, St. Lawrence, and the Pribilof islands. Winters on the coast of southeastern Alaska, in the neighborhood of the Chilkat Peninsula.

Closely resembling the forms just described, the habits of the Pribilof sandpiper are similar to its relatives'.

On the Pribilofs this bird is abundant and tame, living on the moss-covered tundra, on the shores of the pools, and in late summer along the beaches. The young leave the nest as soon as hatched and are well protected by the resemblance of their upper parts to the colors of the vegetation around. When they are approached, the mother, feigning lameness, attempts to draw the intruder away, while the young, flat on the ground with outstretched necks, will allow themselves to be touched rather than betray their location by a movement.

SHARP-TAILED SANDPIPER

(*Tringa acuminata*)

Adult male and female in breeding plumage — Above, reddish buff, feathers with black centres; top of head, ear-coverts, and neck posteriorly, streaked with black and rusty; rump and middle upper tail-coverts, brownish black; lateral upper tail-coverts, white, streaked with dusky; middle tail feathers, dusky, edged with white; remainder, deep brownish gray, bordered with white; a white superciliary stripe; breast, pale brownish gray; rest of lower parts, white; lower parts marked with dark brown spots, which are small on the throat and breast, large and squamate on the flanks and abdomen, and large and lanceolate on the under tail-coverts; iris, brown; bill, black at tip, greenish yellow at base; legs and feet, greenish yellow.

Adult male and female in winter — Upper parts, grayish brown, streaked and striped with dusky; top of head, rusty; superciliary stripe and lower parts, dull white; chest and sides of breast,

pale grayish buff, the chest indistinctly streaked with dusky; lower tail-coverts with dusky shafts.

Young — Above, bright rusty, the feathers with black centres; the whole top of head, bright reddish brown, broadly streaked with black; on each side, a finely streaked superciliary stripe of white; outer scapulars, tipped with white; rump and middle upper tail-coverts, brownish black, tipped with brown; middle tail feathers, black, edged with brown; remaining tail feathers, dusky, bordered with whitish; cheeks, whitish, streaked with dusky; jugulum, breast, and sides, deep buff, finely streaked with dusky; remaining lower parts, including the throat, white.

Measurements — Length, 8 inches; wing, 5.50 inches; culmen, 1 inch; tarsus, 1.12 inches.

Habitat — Breeds probably in eastern Siberia, going south in winter to Oceanica, Australia, New Zealand, and the Malay Archipelago, through China and Japan. It is common on the north shore of Siberia in August, and fairly common at St. Michael, Alaska, in September, occurring also at Kotzebue Sound, the Pribilof Islands, Unalaska, the Queen Charlotte Islands, and Hawaii, and has been taken in Great Britain.

An Asiatic species taken on the Alaskan coast. Nelson took a female at St. Michael in 1877 and later found it a common species, frequenting the pools on the marshes in common with the pectoral sandpiper. In habits the sharp-tailed sandpiper resembles the latter, but differs from it in plumage, having the top of the head more reddish and the breast without streaks. On the Siberian coast this bird is common. It occurs near St. Michael in small flocks the latter part of September, but has not been taken in Alaska during the breeding season.

PECTORAL SANDPIPER[1]

(*Tringa maculata*)

Adult male and female in breeding plumage — Top of head and upper parts, with scapulars and tertials, light clay color tinged with rusty; the feathers have brownish black centres; wing-coverts, grayish brown, edged with buff; primaries, dark brown; rump and upper tail-coverts, brownish black, narrowly tipped with reddish buff; central tail feathers, dusky, edged with lighter; others, pale brownish gray, bordered with white; superciliary stripe, white; cheeks, sides of neck, jugulum, and breast, pale buff, streaked with dusky; remaining lower parts, pure white.

Adult male and female in winter — Similar to the summer plumage, but the rusty tint above wanting and the black markings less sharply defined.

Young — Similar to the adult in summer, but scapulars conspicuously tipped with white; the breast more distinctly buff; iris, brown; bill, tip, brownish, base, yellowish green; legs and feet, greenish.

Measurements — Length, 9 inches; wing, 5 inches; culmen, 1.15 inches; tarsus, 1.05 inches.

Eggs — Four in number; greenish drab in color, spotted and blotched with brown; measure 1.50 by 1 inches.

Habitat — Breeds on the coast of Alaska, north of the peninsula, abundantly at the Yukon Delta and Point Barrow, and probably east on the shores of the Arctic Ocean to the banks of the Anderson River. Winters from Mexico and the West Indies, south to Chili and Patagonia, but chiefly in southern South America, and occurs in flocks in Argentina through all the year

[1] COOPER'S SANDPIPER (*Tringa cooperi*). — A sandpiper shot on Long Island, New York, on May 24, 1833, by William Cooper, and named by Professor Baird in honor of its discoverer, has remained unique. This bird is described as identical in plumage with the white-rumped sandpiper, except that there is less of a reddish tinge above, and the white upper tail-coverts are spotted with V-shaped markings of dusky. It is, however, about the size of the knot, with a length of 9.50 inches; wing, 5.80 inches; culmen, 1.25 inches; tarsus, 1.20 inches. This bird is supposed to be a hybrid between the pectoral sandpiper and knot.

excepting from November 15 to January 15. In the migrations it is abundant on the Atlantic Coast of the United States and in Bermuda in the fall, but very rare in the spring; common in the Mississippi Valley at both seasons, but almost unknown on the Pacific Coast south of British Columbia, excepting Lower California. It has been taken rarely on the Pribilof Islands, Unalaska, Hawaii, and in Greenland, and quite frequently in England.

The pectoral sandpiper is a common bird along the Atlantic Coast in summer and fall, where it is known by a number of different names. Jack-snipe is a term often applied to this variety. It is also called krieker, — on account of its note, a sharp *kriek-kriek*, — and grass bird, meadow snipe, hay bird, and brown snipe. While sparing numbers appear early in August, the first large flocks arrive later, toward the end of the month. They frequent the salt marshes along our coast and often spread out over the meadows, something after the manner of the English snipe, under such circumstances allowing an easy approach. While fond of these surroundings, sometimes they straggle on to the neighboring flats in company with the yellowlegs or flocks of peep, on their route readily stopping to decoys. On the ground the pectoral sandpiper is a sedate little bird, walking deliberately with bill downward; when alighting, the wings are raised over the back and carefully folded. They are very abundant on the islands in the Gulf of St. Lawrence and on the mainland adjacent, arriving early in September in large

flocks. These birds, which are the young of the year, keep pretty much together on the marshes, sometimes feeding with the golden plover. I have often noticed the birds together on the Magdalen Islands; here the kriekers if undisturbed remain in the same locations. When they take wing, they fly in a compact bunch, and if within range, an opportunity is offered of killing many birds at a shot. The flocks increase in numbers until late in the month, when the last arrivals seem to have come. This same flight is noticeable to a less extent farther south, and on the New England and Long Island coasts the young pectorals are found in October, coming perhaps after a storm or heavy weather. These birds follow along our coast to South America, stopping at the West Indies, extending their flight even to Patagonia. The spring flight is over the interior along the Mississippi Valley. Very few are taken at this time on the Atlantic Coast. The return trip is made in May, and the pectoral sandpiper is often a common bird in the markets of the West at this time. Until a recent description of their breeding habits by Nelson, little has been known of this subject. He says, the pectoral sandpiper reaches St. Michael and the shores of Bering Sea about the middle of May; the birds then pair. During the mating season the male has a peculiar habit of inflating the throat and uttering

a musical and resonant note, the skin of the neck and breast becoming flabby and loose, hanging down in a pendulous flap if not distended. When courting the female, the male crosses back and forth in front of her, persistent in his attentions, with chest swelled out, at times rising high in the air and going through the same performances. The nest is placed on the ground in a tuft of grass and contains four eggs.

The young are fledged in July and migrate south about three weeks after the old birds.

The male pectoral sandpiper is so much larger than the female that more than one sportsman has been convinced they were different birds.

WHITE-RUMPED SANDPIPER

(*Tringa fuscicollis*)

Adult male and female in breeding plumage — Upper parts, light grayish brown, the feathers tinged with buff, marked centrally with black; the black markings largest on the scapulars, elsewhere in streaks; rump, dusky, the feathers bordered with gray; upper tail-coverts, pure white; tail, dark gray, the central feathers darkest, all with white edges; wing-coverts, brownish gray; superciliary stripe and entire lower parts, pure white; sides of head, neck, and jugulum, streaked with dusky.

Adult male and female in winter — Wings, rump, upper tail-coverts, and tail, as described above; rest of upper parts, brownish gray, streaked indistinctly with black; under parts, white; jugulum, more faintly streaked than in the breeding plumage.

Young — Back and scapulars, black, feathers tipped with white; those in the middle of the back and rump, edged with rusty; wing-coverts, bordered with pale buff; breast, grayish; otherwise like adult in summer; iris, brown; bill, feet, and legs, greenish black.

Measurements — Length, 7 inches; wing, 5 inches; culmen, 1 inch; tarsus, 1 inch.

Eggs — Four in number; pyriform in shape; ground color, dark drab, marked with patches of brown and black; measure 1.35 by .95 inches.

Habitat — Breeds on the coast of the Arctic Ocean, at Franklin Bay, and probably to Greenland on the east, Point Barrow on the west, and Hudson Bay on the south. Winters from the Bahamas, West Indies, and the Gulf of Mexico, south to Patagonia and the Falkland Islands. In Uruguay it is found in flocks excepting from November 15 to January 15, in Patagonia all the year, and it is said to breed on the Falkland Islands. In the migrations it is most abundant in the United States in the Mississippi Valley, regularly west to Colorado, and has occurred in California; on the Atlantic Coast it is tolerably common in fall and rare in spring, and occurs in Bermuda. Several have been taken in Great Britain, and one in Franz Josef Land.

The Bonaparte's or white-rumped sandpiper is common throughout the eastern United States, occurring as far west as the Rocky Mountains. On the Atlantic Coast they are a common migrant; abundant along the Labrador shores, reaching the mainland early in August, arriving in small relays and frequenting the beaches and flats in company with the smaller peep. Their numbers steadily increase until by the middle and toward the end of the month vast flocks are seen. These birds follow the receding tide, feeding on the animalculæ that swarm at the water's edge. With the first flow they are driven from the flats and return to the higher bars. On the Magdalen Islands I have seen them in countless flocks flying com-

pactly in a black mass, turning and twisting in unison; now the white breasts gleam in the light, the next second the dark backs and white rumps, a spot that always marks them. They have no fear, and should a flock light among the decoys the birds sometimes come on to the seaweed blind, paying no heed to the occupant, provided he remain motionless. When startled they all rise together and with a rush of wings are off, uttering their note, a sharp *tseet.* All through August these birds remain and then diminish in numbers as the flight south is resumed. They are common all along our coast, but not in the same vast flocks as in the North. The southern migration extends along both coasts of South America as far south as Chili and the Argentine Republic. The young birds follow in September and often linger late on our shores. I have killed them late in November on Long Island. The spring flight north is mostly through the interior, although limited numbers follow along the Atlantic Coast. May is the month for their return. Throughout the Barren Grounds they breed as far north as the shores of the Arctic Sea. The nest is a shallow depression on the ground, and three or four eggs are laid on the moss or leaves, if leaves there be. The young are hatched in late June, and by July are deserted by the old birds.

BAIRD'S SANDPIPER

(*Tringa bairdii*)

Adult male and female in breeding plumage — Upper parts, variegated with black and grayish buff, centre of the feathers black, with buff borders; on the crown and anterior portions of the back, the black is in streaks; rump and upper tail-coverts, brownish black; tail, brownish gray, middle feathers nearly black, and all edged with whitish; wing-coverts, grayish brown; lower parts, white; sides of the head, neck, and jugulum, buff, streaked with dusky.

Adult male and female in winter — Upper parts, grayish clay color, feathers with dark central streaks, edged with whitish; rump and upper tail-coverts, dusky, feathers bordered with gray; the lateral upper tail-coverts, brownish white; under parts, brownish white; the sides of the neck, jugulum, and breast, and flanks, suffused with buff; iris, brown; bill, black; legs and feet, dark slate.

Young — Upper parts, similar, but the feathers of the back more bordered with whitish; sides of the head, neck, jugulum, and breast, pale clay color, indistinctly streaked with dusky; other lower parts, white.

Measurements — Length, 7.25 inches; wing, 4.75 inches; culmen, 1 inch; tarsus, 1 inch.

Eggs — Four in number; light drab, spotted with bright sepia-brown; measure 1.40 by 1 inches.

Habitat — Breeds from the Anderson River to Point Barrow, Alaska, and possibly south to James Bay. Winters in southern South America, most common in Chili, but occurring in Argentina and Uruguay, passing through Central America in migration. In the United States, common in migration from the Mississippi River to the Rocky Mountains; occurs irregularly in fall east to the Atlantic Coast, from Nova Scotia to Maryland, and on the Pacific occurs in Alaska, Washington, California, and Lower California, and is said to be abundant in British Columbia. Recorded also from England and Walfish Bay, South Africa.

An inland variety occurring throughout the interior in North America from the Mississippi Valley to the Rocky Mountains and south into

Mexico and Central America. It frequents the shores of lakes and rivers, occurring generally in flocks of five or six, and is gentle and unsuspecting. Occasionally the bird is seen away from water and has been noticed at the summit of Mount Evans in Colorado, an altitude of 14,000 feet. The Arctic regions of North America and Alaska are its breeding-grounds. The nest is a mere hollow in the grass, usually on dry ground; and the female is a close sitter, using every artifice to distract the attention of the intruder from her eggs, running close in front and feigning wounded. On the Atlantic Coast this bird is rare, and formerly but few specimens were recorded, but are more common than originally supposed. The writer has found the birds near New Haven, Connecticut, repeatedly, usually early in October, and in two instances in company with red-backed sandpipers.

LEAST SANDPIPER

(*Tringa minutilla*)

Adult male and female in breeding plumage — Top of head, light grayish brown, or fulvous, thickly streaked with black; back and scapulars, black; feathers, bordered with rusty, the tips of some of the feathers often whitish; rump and middle upper tail-coverts, dark brown; lateral upper tail-coverts, white, with markings of gray; middle tail feathers, dusky, with pale edges; remainder, light gray, with white shafts; wing-coverts, grayish brown, with dark centres and pale edges; a light superciliary stripe; neck and jugulum, pale fulvous, streaked with dusky; throat and entire lower parts, white.

Adult male and female in winter — Upper parts, dark brownish gray, the feathers with indistinct, dark centres; superciliary stripe and lower parts, white; jugulum, light ashy, indistinctly streaked; otherwise similar to the summer plumage.

Young — Similar to the summer plumage of the adult, but the scapulars without bars, and tipped with white; wing-coverts, bordered with ochraceous; jugulum, pale fulvous, slightly streaked; iris, brown; bill, black; legs and feet, dusky.

Downy young — Above, bright cinnamon-rufous mottled with black, many feathers tipped with white; line from bill through eye, blackish; forehead, orbital region and lower parts, brownish white; spot of bright cinnamon-rufous on side of chest.

Measurements — Length, 6 inches; wing, 3.75 inches; culmen, .88 inch; tarsus, .75 inch; middle toe, .60 inch.

Eggs — Four in number; light drab in color, thinly marked with brown spots; measure 1.15 by .85 inches.

Habitat — Breeds from Sable Island, the Gulf of St. Lawrence, Kenewatin, Assiniboia, and probably eastern British Columbia, north to the shores of the Arctic Ocean, at Kotzebue Sound, Alaska, and Franklin Bay, and probably in Cumberland and Greenland; winters from the Bahamas, West Indies, Florida, Louisiana, and California, south to Brazil, Peru, and the Galapagos; common throughout the United States in migration, and occurs in Bermuda, and a few are found in summer in Jamaica, Florida, and Louisiana. Recorded from Siberia and Europe.

Of all our shore-bird family this mite is the smallest and is widely scattered throughout North America, ranging from the Arctic Sea to Brazil, — passing through our domains on their spring and summer migration, in the interior and along the coast.

The least sandpiper breeds in the Arctic regions as far south as Labrador and the islands in the Gulf of St. Lawrence, where it has been taken on the Magdalens, but the nest is seldom found. It

is placed on the ground, nicely concealed in moss or grass, near water. The female, if disturbed, feigns wounded, endeavoring to distract the attention of the intruder, and, if not frightened, returning almost at once to her nest. The downy young are pretty little fellows, mottled with black and bright rufous above, the down tipped with silvery white, and as they struggle among the grass stems remind one of so many large beetles. By July they care for themselves. Toward the middle and end of the month, flocks of least sandpipers in company with the semipalmated sandpipers, their close companions, and ring-necked plover appear along our coast. These birds congregating in vast numbers are universally known as "peep." Generally unmolested they are gentle and tame, allowing close approach, often coming up on to the blind itself if the occupant is still. While seen everywhere on the shore, this variety seems to prefer the scum-covered pools on the marshes, remaining after the other sandpipers have left to follow the falling tide. Here they feed on insects and animalculæ which abound, generally in flocks, for they are sociable little chaps, when frightened taking wing and quickly closing together in a compact mass which too often attracts a shot from some wanton gun. The flight is speedy and graceful, the birds turning and wheeling at the same instant, so that now the

light strikes their breasts and there is a white gleam, another second, and the backs show dark. Their note is a soft peep and hence the name. It is heard when a few birds are in quest of a flock. I once saw a pigeon hawk in close pursuit of a least sandpiper, and within a few feet of its prey; the little bird dodged it repeatedly, finally effecting its escape by joining a flock of larger birds. The young birds of the year follow the old, and all through August the least and semipalmated sandpipers remain with us, diminishing in numbers toward the end of the month, the Bonaparte's sandpiper arriving in their stead. It is early May before we see them again.

LONG-TOED STINT

(*Tringa damacensis*)

Adult male and female in breeding plumage — Top of head, nape, back, and scapulars, black, tipped with chestnut; wing-coverts, dark brown, with grayish edges; rump and upper tail-coverts, black; lateral coverts, white; superciliary stripe, white; loral stripe, sides of head, buff; throat, white; jugulum, buff, spotted with brown; rest of under parts, pure white; iris, dark brown; bill, black; feet and legs, yellowish green.

Measurements — Length, 5.50 inches; wing, 3.50 inches; culmen, .75 inch; tarsus, .75 inch; middle toe, with claw, .90 inch.

Habitat — Eastern Asia, breeding in eastern Siberia, Kamchatka, the Kuril Islands, and probably the Commander Islands; passes south in winter, through China and Japan, to India, Burma, the Malay Archipelago, and Australia; accidental on Otter Island, Alaska.

This bird is an Asiatic variety, its eastern range being marked by Japan and the Indian Archi-

pelago, and has been admitted to the American Check-List, on account of its rare occurrence in Alaska, a single specimen having been taken on Otter Island in Bering Sea, June 8, 1885.

On Bering Island it has been observed in large flocks in May, and feeds on the small crustaceans which abound in the masses of seaweed lying on the beaches. A few breed there in a large swamp behind the town, and also in Kamchatka and part of northeastern Siberia, but the eggs are unknown.

DUNLIN

(*Tringa alpina*)

Plumage — Similar to *T. a. pacifica*, but smaller, and less brightly colored in breeding plumage; the pale markings of the upper parts are buffy, and the black abdomen is not strongly contrasted with the speckled breast.

Downy young — Upper parts, black, spotted with rufous and white; forehead and sides of head buffy white; dark line from bill above and below eye; under parts grayish white.

Measurements — Length, 7.50 inches; wing, 4.50 inches; culmen, 1.15 to 1.40 inches; tarsus, .85 to 1 inch; middle toe, .70 to .75 inch.

Eggs — Four; olive, buff, or pale greenish; spotted or speckled with vandyke brown and purplish gray; measure 1.30 inches by .95 inch.

Habitat — Breeds in Scotland and the islands north, occasionally England, Iceland, and probably Greenland, Denmark, Russia, eastern Turkestan, and Siberia, east to the Yenisei River, and north to latitude 74°, and has bred in Spain; winters in Great Britain, Holland, and the Caspian Sea, south to the Canaries, northern Africa, Somaliland, possibly Zanzibar, and east to Calcutta; in North America has been recorded from west of Hudson Bay, Massachusetts, Long Island, New York, New Jersey (?), and Washington, D.C.; also taken in Spitzbergen.

This European variety has been included among the American shore-birds because of its rarely straggling to the Alantic Coast of North America. The dunlin is among the best-known shore-birds of Europe, and much has been written about it. The breeding habits are interesting. Then the bird becomes very tame, and will often stay on her nest until closely approached. When flushed from the eggs, which lie on a few grasses in a dry place in the marsh, she sometimes flutters away or leaves with a shrill cry, and then, joined by the male, flies about the disturber's head, uttering a gentle twitter. This bird breeds commonly in Scotland on the moorland and marshes, laying in May.

RED-BACKED SANDPIPER, OR AMERICAN DUNLIN

(*Tringa alpina pacifica*)

Adult male and female in breeding plumage — Top of head, back, scapulars, rump, and upper tail-coverts, light rufous, streaked on the crown, spotted on the back, with black; wing-coverts, brownish gray, broadly tipped with white; remainder of head, neck, jugulum, and breast, grayish white, with dusky streaks; abdomen, black; sides, flanks, anal region, and lining of the wing, pure white, all slightly streaked.

Adult male and female in winter — Upper parts, plain ashy gray, marked occasionally with indistinct dusky streaks; an indistinct superciliary stripe; lower parts, white; neck and jugulum, heavily clouded with gray.

Young — Back and scapulars, black, feathers bordered broadly with rusty; lesser and middle coverts, bordered with buff; rump pale brownish slate; upper tail-coverts, darker; top of head, rusty, streaked with black; head and neck, dull buff, streaked with

dusky; throat and lower parts, white; the breast and belly, irregularly marked with black; iris, dark brown; bill and feet, black.

Measurements — Length, 8.50 inches; wing, 4.75 inches; culmen, 1.50 inches; tarsus, 1.10 inches; middle toe, .75 inch.

Eggs — Four in number; color, pale green, spotted and blotched with dark brown; measure 1.43 by 1 inches.

Habitat — Breeds probably in Greenland and from Hudson Bay to Davis Strait, Melville Peninsula, Point Barrow, Alaska, along the coast to the Yukon, and through eastern Siberia to the Yenisei River. Winters from New Jersey, Louisiana, Texas, and California, south at least to Nicaragua, and in Asia from China and Japan to the Malay Archipelago.

The American red-backed sandpiper is closely allied to the European dunlin, the two varieties being almost indistinguishable, save for a slight difference in size, the American bird being somewhat larger. This species is well known along both the Atlantic and Pacific coasts, and occurs to a less extent in the interior, having been found common in the neighborhood of the Salt Lake and portions of the Missouri and Mississippi valleys. In the fall the red-backed sandpiper is a regular migrant on the New England coast, arriving in small flocks. It is found on the sandy beaches, and I have often noticed them on the outer rocky islands and breakwaters. The birds are active and restless, feeding a few minutes in some spot, then taking wing and settling a short distance off. While flying the flocks bunch up and a single shot is often very destructive. Farther south their numbers increase, and about the

Chesapeake they are very abundant, reaching Florida in late fall. On the spring migration the birds are common as far north as Virginia, but much rarer on Long Island and the New England coast than in the fall. I have seen them abundant in May at Cobb's Island, where flock after flock followed low down over the surf, lighting on the beach at the water's edge, and feeding frequently in company with the redbreast. On the flats they were never in as large numbers. The full spring plumage of the red-backed sandpiper is very unlike the fall, and in the two different attires the birds would scarcely be recognized as the same species. The bright red back and soft black breast are a pleasing combination. In this dress the flocks reach the breeding-grounds. These are in Alaska about the mouth of the Yukon, along the shores of Bering Sea, on the Melville Peninsula and the northern portions of the eastern Arctic regions. Early in June nesting is begun, and the birds become exceedingly active in their devotion to each other, the note at this time resembling the sounds of frogs in New England in early spring, and is heard everywhere on the tundra. While mating, Mr. Nelson says, the males pursue the females through the air, uttering a musical trilling note which sounds like "the mellow tinkle of large water-drops falling rapidly into a partly filled vessel." Later, as his

suit promises success, the male, rising fifteen to twenty yards in the air, hovers over the female, pouring forth a perfect gush of music, and then sinks back to earth. But, later still, he gives up his singing and takes his turn in keeping the eggs from catching cold. The nest is on slightly elevated ground, and the eggs are placed on a little dried grass; before August the young fly, and gather in flocks about the shore, remaining until late September, then leaving for more southern climes. This species is also known in various localities as winter snipe, leadback, fall snipe, brant snipe, and black-bellied sandpiper.

CURLEW SANDPIPER

(*Tringa ferruginea*)

Adult male and female in breeding plumage — Crown, back, and scapulars, rusty, streaked with black; head, neck, breast, sides, and belly, deep chestnut; anal region, upper and lower tail-coverts, white, spotted with black and tinged with rusty; wing-coverts, brownish gray, tipped with white; middle tail feathers, dark slate color; rest of the tail, ashy gray, feathers bordered with white.

Winter plumage — Upper parts, brownish gray, marked indistinctly with darker; tail-coverts, upper and lower, white, spotted with black; superciliary stripe and lower parts, white, the jugulum faintly streaked with gray.

Young — Back and scapulars, dusky black, feathers tipped with light brown and terminally with white; lesser and middle wing-coverts, bordered with buff; upper tail-coverts, white; indistinct superciliary stripe and lower parts, white; jugulum and sides of the head, tinged with buff; iris, brown; bill, black at tip, blackish green at base; feet and legs, light olive.

Measurements — Length, 9 inches; wing, 5 inches; culmen, 1.50 inches; tarsus, 1.12 inches; middle toe, .70 inch.

Eggs — Four in number; light greenish drab in color, with blotches of brown of various shades; measure 1.50 by 1.05 inches.

Habitat — Breeds at the delta of the Yenisei River, Siberia, and doubtless other points on the Arctic Coast of Siberia, and a set of eggs ascribed to this species has been taken in Greenland. Winters in Africa, south to the Cape of Good Hope, India, the Malay Archipelago, and Australia, and occurs in migration from Great Britain to China and the Philippines. It occurs frequently in Greenland, and has been recorded from the West Indies and Patagonia. On the mainland of North America it has been recorded from Point Barrow, Alaska, Hudson Bay (?), Nova Scotia, Maine, Massachusetts, Connecticut (?), Long Island, New York, New Jersey, Michigan, and Ontario.

While common through the northern portions of Europe, the curlew sandpiper is hardly more than a straggler to the Atlantic Coast. It has been taken a number of times on Long Island, and there are a few instances of its occurrence in New England. In northern Greenland it is not uncommon, and breeds. A male of this species taken June 6, 1883, at Point Barrow, Alaska, is the only instance of its appearance on the Arctic or Pacific Coast of America.

The first eggs of this species, of which the identification is beyond question, are a set of four, taken by Mr. H. L. Popham, at the delta of the Yenisei River, July 3, 1897. The female was flushed from the nest, seen to return to it, and shot when she ran away from it the third or fourth time. These eggs resemble those of the

European snipe in color and measure about 1½ inches long by 1 inch broad. "The nest was a rather deep hollow in the reindeer-moss in an open space on a ridge of ground somewhat drier than the surrounding swampy tundra." As these eggs almost duplicate in size and color the set ascribed to this species procured by Governor Fencker in Greenland, it is probable that the latter was correctly identified.

SPOON-BILL SANDPIPER

(*Eurynorhynchus pygmæus*)

Adult male and female in summer — Bill, characteristic, black, longer than the head, flat, dilated considerably at the extremity in a rhomboidal shape; head, neck, breast, and back, ferruginous, the feathers of the head, back of neck, and back, with dark brown centres; those of the throat and breast slightly tipped with white; under parts, from breast down, becoming white; iris, brown; legs and feet, black.

Adult male and female in winter — Upper parts, dusky brown, each feather edged with gray; forehead, face, throat, and under parts, white; tail, short, consists of twelve feathers, the two central ones longest and darkest.

Young — Top of head, light gray, with black spots, feathers edged with rusty; remainder of head, neck, and lower parts, dirty white, tinged with gray; abdomen, white; scapulars with black centres, dark gray beneath the surface, tipped with dirty white, margined with rusty; wing, brownish gray, a white bar across the wing formed by the tips of the greater coverts.

Measurements — Length, 6 inches; wing, 3.75 inches; tarsus, .90 inch; culmen, .90 inch; width of bill near tip, .40 inch.

Eggs — Undescribed.

Habitat — Breeding range unknown, but supposed to be north-eastern Siberia, where it has been found in summer. Migrates

through Japan and China to India and Burma in winter. A single specimen was taken on the Choris Peninsula, Alaska, in 1849.

Perhaps the rarest of our shore-birds, the spoon-bill sandpiper has seldom been taken, and little is known of its habits. It is most common, probably, on the Arctic Coast of Asia, and may follow the coast of China to India. Nelson secured a specimen of this bird in summer plumage, in 1881, at Plover Bay, Siberia. It was standing on the edge of a small pool, on a spit near the harbor entrance. A specimen in my own collection bears a Japanese label, and I have seen the bird on Japanese price-lists.

According to Nelson, Nordenskjold found this species so common at Tapkan, on the Arctic Coast of Siberia, in June, that they were served twice on the gun-room table of his ship. A number of specimens have been collected in India in winter, and in spring and fall in China and Japan. Little is known of this bird's habits, and its eggs have never been taken.

SEMIPALMATED SANDPIPER

(*Ereunetes pusillus*)

Adult male and female in breeding plumage — Upper surface, light gray-brown, occasionally tinged with pale cinnamon; head and dorsal region, heavily spotted with black; wing-coverts, pale brown, edged with white; primaries, dark brown, edged with black; rump, black; upper tail-coverts, blackish brown; a dusky loral stripe; superciliary stripe and throat, pure white; breast,

gray, striped with brown; rest of under parts, white; iris, brown; bill, feet, and legs, black; feet, slightly palmated. This always distinguishes them from the least sandpiper.

Adult in winter — Similar to the summer plumage, but the breast and lower parts are white, only slightly tinged with gray.

Young — Similar to the summer adult plumage, but breast is tinged with pale grayish buff and is without well-defined streaks or spots; scapulars are bordered with white; the brown on the upper parts is usually lighter.

Downy young — Crown, chestnut; rest of upper parts, fulvous brown, spotted with black and white; forehead, whitish; black line in centre of forehead and on lores; throat, fulvous white; rest of lower parts, white.

Measurements — Length, 6 inches; wing, 3.75 inches; culmen of male, .68 to .75 inch, of female, .80 to .95 inch (Ridgeway); tarsus, .85 inch.

Eggs — Four in number; ground color, a light gray, thickly spotted with reddish and dark sepia, chiefly on the larger end; measure 1.20 by .85 inches.

Habitat — Breeds from Labrador and Hudson Bay to the Arctic Coast at the Anderson River, and along the coast to Kotzebue Sound, Alaska, and possibly south in the interior to Assiniboia, and a set of eggs believed to belong to this species has been taken in Connecticut. Winters from the Bahamas and the West Indies, possibly Florida and Texas, to Central America, Brazil, and Patagonia. Abundant in North America east of the Rocky Mountains in migration, and in British Columbia east of the Cascades; occurs also on the coast of California and British Columbia, and has been taken on the Pribilof Islands and Bermuda, and occurs in Florida in summer. Accidental in Europe.

With the least sandpiper this bird comprises the flocks of peep found along the eastern coast — now in many of the former haunts about all that is left of the shore-bird family. Arriving on our shores toward the end of July, they swarm

about the beaches, feeding at the water's edge, often rising in a cloud, showing now white, now dark, as the birds in unison turn breasts or backs to the light. This species is less of a marsh bird than its associate, the least sandpiper, and prefers the sandy, muddy flats, left bare by a falling tide. In places where thick eel-grass is exposed at low water, they often congregate on the surface, giving the appearance a short distance off of walking on the water. Early to come and early to go, most of the peep are southward bound before the middle of August, following our coast to the West Indies and South America, where they winter, to return in May along the same courses. They breed in the regions about the shores of the Arctic Sea, from Labrador to Alaska. The nest has been found in the Barren Grounds and on the islands. It is placed on the grass or moss, and incubation is established in June. The young fly in July. While this bird is found chiefly in the eastern portions of North America, in the West giving place to the western variety, it is abundant along the Mississippi Valley and in Texas, and is said to be common in Alaska. The semipalmated sandpiper with the least, in localities, goes by the name of ox-eye. Like the other small sandpipers it is friendly and unsuspicious and will continue feeding within a few feet of an observer, if he refrains from sudden movements.

WESTERN SANDPIPER

(*Ereunetes occidentalis*)

Adult male and female in breeding plumage— Very similar to *E. pusillus*, but with top of head and upper parts more marked with brown; the cinnamon along the sides of the crown is sometimes nearly uniform; a white superciliary stripe, bordered below by a stripe of light rufous from the bill, beneath the eyes, to the ear-coverts; remainder of the head, white, streaked, except on the throat, with dusky; lower parts, pure white; jugulum and breast, thickly marked with streaks of dusky; iris, brown; bill, feet, and legs, black.

Adult in winter, and young— Not distinguishable in winter from *E. pusillus*. In these plumages distinction can only be made from the greater length of bill.

Downy young— Similar to *E. pusillus*, but with rusty prevailing on upper parts.

Measurements— Length, 6.75 inches; wing, 3.75 inches; culmen of male, .85 to .95 inch, of female, 1 to 1.15 inches (Ridgeway); tarsus, .90 inch.

Eggs— Similar in color and measurements to *E. pusillus*.

Habitat— Breeds at the mouth of the Yukon, Alaska, along the coast to Kotzebue Sound, and is said to be an abundant resident in British Columbia. Winters on the Atlantic Coast from North Carolina to Florida, probably in the West Indies, and occurs in Mexico, Central America, and Venezuela to Peru. In migrations abundant on the Pacific Coast of North America, occurring on the Aleutian and Queen Charlotte islands; tolerably common in the interior east to the Rocky Mountains, and in Texas, and on the Atlantic Coast from Massachusetts south.

Almost exactly similar to the semipalmated sandpiper, but with slightly larger bill. This bird is common along the western coast and also in the interior. It is sometimes taken on the eastern coast in company with the flocks of peep. In the spring the western sandpiper is abundant

on the shores of Bering Sea and the coast and islands of Alaska about the mouth of the Yukon. They arrive here in May, and toward the end of the month breed near the pools about the shore. The note at this time is almost musical, and the mated birds are devoted to each other. The courting of this species is much the same pretty performance as that of the red-backed sandpiper, the same author tells us, and also describes how the male, to show his best to his wished-for mate, trailing his wings, elevating and partly spreading his tail, struts before her "like a pygmy turkey-cock." The nest is placed on elevated ground, on the moss, or grassy hummock, and the female watches faithfully her eggs. The young are hatched in June, and by late September the flocks have passed on to the southern shores.

SANDERLING

(*Caladris arenaria*)

Adult male and female in breeding plumage — Top of head and neck, back and scapulars, have the centre of the feathers black, edged with rufous brown and grayish white, the latter color predominating; wing-coverts, ashy brown, tipped with rufous or gray; greater coverts, edged with white, forming a broad bar across the wing; primaries, dark brown; rump, dark brown, feathers edged with grayish white or rufous brown; middle tail-coverts, black, margined with rufous; lateral tail-coverts, white, with occasional black streaks; tail, grayish brown; sides of head, throat, neck, and breast, light rufous, streaked and speckled with black; rest of under parts, white.

Adult male and female in winter — Above, pale gray, the centre of the feathers black; on the rump, the centre of the feathers a light brown; under parts, pure white.

Young — Upper parts, gray, spotted with black and white, sometimes a buff tinge, the white or the buff being noticeable on the tips of the feathers; jugulum, white, faintly tinged with buff; remainder of under parts, white; iris, brown; bill and feet, black.

Measurements — Length, 8 inches; wing, 5 inches; culmen, 1 inch; tarsus, 1 inch.

Eggs — Four in number; color, brownish olive marked with faint brown spots; measure 1.44 by .95 inches.

Habitat — In North America breeds from the Barren Grounds, near the Arctic Coast at Franklin Bay, north to Grinnell Land and northern Greenland, and possibly south to Hudson Bay. Winters from Virginia, occasionally Massachusetts, Bermuda, West Indies, Texas, and southern California, south to Chili and Patagonia, sometimes occurring in Venezuela by July 7, and in Bolivia in August. In the migrations it is common on the Atlantic Coast of the United States; rather rare in the interior, except on the Great Lakes, and on the Pacific Coast north of California. In the eastern hemisphere it has been found in summer in northern Siberia, Spitzbergen, Franz Josef Land, and Iceland, but the eggs have not been taken. Winters from the Mediterranean to South Africa, the north shore of the Indian Ocean to Burma and the Malay Archipelago, in China and Japan, and in many islands of the oceans, including Hawaii.

One of the most widely distributed of the sandpiper family, the sanderling is found along the shores of North and South America, and pretty much throughout the eastern hemisphere. Its favorite haunts are the ocean beaches, at the very edge of the foamy swash, where a receding wave leaves bare and wet the sand and sand-flies are flooded from their holes. Here the sanderling dodges the rough water in quest of food,

running just in front of the wave; if startled, circling out over the breakers, to turn in and feed again farther down the beach. We often see them on the sand-bars of bays and lagoons, gathered in large flocks, and ready to take wing at any provocation. On the mud flats they are less common, and marshes seldom attract. Early August is the time to look for sanderling. The birds are short sojourners, and generally by the middle of the month are gone, to be followed a little later by the young birds, the first of which arrive by the end of the month and remain into September. Their plumage is different from the adult, and has a soft, attractive appearance, — the snowy white of the breast and the gray and black markings of the back affording a pleasing combination. The young are very tame, and, though small, are killed regularly along the coast. In the spring, early May finds the sanderling along our shores in more limited numbers than in the fall, but still in many localities abundant.

The breeding plumage varies considerably, from a white on the breast to a rich, reddish brown, mottled and speckled with dark, a handsome dress. By June, far beyond our reach, in the seclusion of the Arctic regions, they breed, and in a short six weeks are ready to leave their young and begin the long trip south. The nest has not frequently been taken. One, and the first, found by MacFar-

lane, near the Arctic Sea, was on the ground, constructed of grass and decayed leaves, in a little hollow. A nest described by Fielding was situated on a gravel ridge, several hundred feet above the sea-level, on a small depression in a recumbent Arctic willow.

Other names for this bird are beach bird and ruddy plover.

MARBLED GODWIT

(*Limosa fedoa*)

Adult male and female in breeding plumage — Head and neck, pale buff, with black streaks; these are broadest and most numerous on the top of the head and neck; upper parts, entire, and scapulars, reddish buff, irregularly barred with black; rump and upper tail-coverts, buff, barred with dark brown; tail, reddish barred irregularly with brown; a broad superciliary stripe of white; a loral stripe of dark brown; throat, white or buff; entire under parts, pale rufous or buff, the color varying in intensity in different individuals, transversely crossed with wavy dark lines, except the centre of the abdomen and anal region, which is plain; under wing-coverts, reddish buff; bill, long, curved upward, both mandibles grooved; dull flesh color at its base, with the terminal half dark brown; feet, bluish gray; iris, brown.

Adult male and female in winter — Resemble the spring plumage, but the buff is paler and more indistinct.

Young — Resemble adults, but are more finely mottled above; entire lower parts, pale rufous, becoming buff on throat, not barred, sparingly streaked with dusky on lower neck.

Measurements — Length, 18 inches; wing, 9 inches; tail, 3.50 inches; bill, 4.50 inches; tarsus, 3 inches.

Eggs — Three to four in number; color, pale greenish drab, spotted and blotched with yellowish and olive-brown; measure 2.27 by 1.60 inches.

Habitat — Breeds from Ohio (?), Iowa, Nebraska, Colorado, and Minnesota, possibly Lower California, to Manitoba, Saskatche-

wan, and British Columbia east of the Cascades, and probably Hudson Bay and Alaska, as a young bird has been taken at Point Barrow in August. Winters from southern California, Lower California, Louisiana, Florida, and the West Indies, to Central America, and recorded in Ecuador, Peru, and Argentina. Rare migrant through eastern North America, chiefly in fall, but recorded from Newfoundland to Florida.

Formerly common and well known through temperate North America, the great marbled godwit and the long-billed curlew probably show the evidence of a relentless persecution more than any others of our shore-birds. In places where flocks of thousands were no uncommon sight, now these birds are rare. Along the coasts of our Southern states, especially Florida, the great marbled godwit wintered in vast numbers, frequenting the marshes and flats, gathering on the sandy islands offshore to rest. Like the long-billed curlew, the birds show a peculiar devotion to their wounded, circling around them, uttering cries of distress, and exposing their ranks to shot after shot. The note is a clear whistle and the godwit readily answers the call, though when feeding on the open marshes it is wild and shy. On the New England coast and Long Island this species has never been common, and is at the present time only a straggler. During the past summer (1902) three were taken on Cape Cod. I have known of a few shot on Long Island in the past two years. In the Western states, particularly on the plains, this

bird is still found, and is not uncommon on the prairie watercourses of Montana and Dakota, south into Texas. The flocks are usually small and on the wing, marked by a characteristic, undulating flight, — the birds, under these circumstances, seldom uttering any note. The flesh generally is excellent. May is the time for the appearance of the spring flight, and numbers breed as far north as the fur countries, but more commonly within our own boundaries than was originally supposed, nests having been found in Iowa and in parts of the Missouri River regions. In May, 1901, I saw a pair of these birds on one of the large marshy lakes near Chihuahua, Mexico. They were among a number of teal and avocet, and kept on the grass near the flat, remaining after the others had taken wing, and allowed an easy approach. On the Pacific Coast the marbled godwit is found in numbers in southern California, and may breed here, the young having been noticed in July. The various names for this species are red curlew, straight-billed curlew, and marlin.

PACIFIC GODWIT

(*Limosa lapponica baueri*)

Adult male in breeding plumage — Top of head, dusky black, streaked with buff; neck posteriorly, buff, streaked with dusky; back and scapulars, dusky, irregularly mottled with light rufous; rump, dusky gray, feathers faintly bordered with white; upper tail-coverts, white, the feathers with triangular spots of dusky in the

centre, tipped with white; tail, gray, the feathers barred irregularly with white on inner webs; a stripe extending from the bill over the eye, cheeks, throat, and entire under parts, reddish buff; belly, white; under tail-coverts, white, transversely marked with dusky; iris, brown; bill, flesh color at base, blackish brown on terminal half; legs and feet, bluish gray.

Adult female in breeding plumage — Similar to the male, but the under surface is paler and more mixed with white, and the measurements average larger.

Adult male and female in winter — Top of head, back of neck, and upper parts, brownish gray, lightest on head and neck; centre of the feathers, dark; under parts, ash-brown on throat and neck, white on breast and abdomen; flanks, faintly barred. The plumage shows wide variations.

Measurements — Length, 16 inches; wing, 8.75 inches; culmen, 3.50 inches; tarsus, 2.25 inches.

Eggs — Two in number; greenish drab, with irregular blotches of pale brown; measure 2.25 by 1.42 inches.

Habitat — Breeds in eastern Siberia, Kamchatka, and western Alaska from the mouth of the Yukon to Kotzebue Sound and probably Point Barrow, and possibly on the Aleutians. Winters in the Malay Archipelago, Australia, New Zealand, and Oceanica. Occurs in migrations on the Pribilof, Aleutian, and Commander islands, Hawaii, China, Japan, and the Philippines, and accidentally in Lower California.

A summer resident of Alaska, this bird is hardly more than a straggler to the Pacific Coast of the United States, having been taken in Lower California. It is found along the shores of eastern Asia, and on various of the Pacific islands, south to Australia. The Pacific godwit, in breeding plumage, is a showy bird and the largest of the waders in the regions it frequents. Nelson describes it as reaching St. Michael in flocks of from twenty to two hundred, separating toward

the middle of May into pairs, and seeking the open country to breed. The males carry on a very vociferous courtship, uttering continually a loud *kû-wéw*, and occasionally a rolling whistle, resembling that of the Bartramian sandpiper. The nest is placed in the sedge grass on the ground, and contains usually two eggs. Numbers of the birds breed in comparatively small territory, and if this is disturbed, resent the intrusion with wild commotion, circling about and uttering cries of distress. The young are hatched in June and fly in July, all leaving at the approach of fall. On the Pribilof Islands the birds disappear in May and return late in August. Marshes near the shore and the adjacent flats are their resorts, and here they feed on small shellfish and animalculæ. The flesh is excellent.

The bar-tailed godwit, of which this bird is a subspecies, with habits probably identical, nests on the tundra in the northern part of Siberia. The nest is very difficult to find, as the female sits close, her back exactly resembling the surrounding ground, and the nest itself is merely a slight hollow lined with a few grasses somewhere on the great waste of rolling tundra. The male, on the other hand, assails the intruder, when he is half a mile from the nest, with violent screaming, and stays with him until he leaves the place. The note is said to sound like *koo-wak*.

HUDSONIAN GODWIT

(*Limosa hæmastica*)

Adult male — Top of head, neck, upper parts, blackish brown, irregularly spotted and barred with ochraceous, the rump plain brownish black; upper tail-coverts, white; wing-coverts, plain dark gray; primaries, dark brown, with white shafts; lower parts, chestnut-brown, marked with bars of dark brown, the feathers of the belly tipped with white; tail, black, with base and tip of white; wings underneath and axillars, black.

Adult female in breeding plumage — Similar to male, but paler on breast, the feathers here more mixed with white; averages larger.

Adult male and female in winter — Above, pale dull brownish gray; under parts, white; breast shaded with dark gray.

Young — Resembles the winter plumage, but each feather of the dorsal region marked with a subterminal dusky crescent, and a narrower terminal one of ochraceous; under parts, pale drab; abdomen, white, and jugulum, gray; bill, grayish yellow, dark brown along the ridge of the upper mandible and toward the tips of both; iris, brown; feet, slate color.

Measurements — Length, 15 inches; wing, 8.25 inches; tail, 3.50 inches; culmen, 3 inches; tarsus, 2.40 inches.

Eggs — Four in number; dark drab in color, larger end stained and spotted with dark umber; measure 2.15 by 1.40 inches.

Habitat — Breeds on the lower Anderson River in Arctic America, and probably east near the shores of the Arctic to Cumberland, and possibly west to Point Barrow and south to Hudson Bay. Winters in Argentina, Patagonia, south to Straits of Magellan, and on the Falkland Islands. In the migrations through the United States not found west of North and South Dakota, Nebraska, Kansas, and Louisiana; most common on the Atlantic Coast in fall and the Mississippi Valley in spring, occurring also in western Cuba, and on the Yukon and Cook Inlet, Alaska. Flocks of this species are said to appear in Argentina in April and stay until September, and these birds, some believe, breed in Patagonia and the Falkland Islands. One taken in Bermuda.

The Hudsonian godwit is rather an uncommon bird, probably at no time abundant on the Atlantic Coast of the United States. It is now a rare straggler, and in the haunts famous for shore-birds along our shores an odd one is only occasionally taken. This species is known by the gunners in some localities as spotted rump, spotted marlin, or ring-tailed marlin.

One of the market gunners on Cape Cod told me during the gunning season he usually killed one or two of these birds. On Long Island I have heard the same story. Those specimens I have known of in these places have been adults in immature plumage, taken early in August. The young bird would not appear before the middle of September. Farther north on the Atlantic Coast the Hudsonian godwit is a regular summer migrant, congregating in large numbers on the shores of Hudson Bay and Labrador, preparatory to the start south. I have seen these birds on some of the islands in the Gulf of St. Lawrence in large flocks. They arrive late in July, the first comers being steadily augmented by new arrivals until by the first week of August their greatest abundance has been reached. From this time on the numbers rapidly decrease, and by the last of the month only odd birds are seen. The young appear about the middle of September and until October 1 are common in the

same locations. On the adjacent mainland and the shores farther south the birds are seldom met with, and then only as odd stragglers. Where they stop next and what their course is on departing is a mystery. Probably they keep well out to the open sea, and along with the golden plover wisely skip the United States in the fall flight south.

On the islands where these birds congregate they frequent the large open lagoons where the low tide leaves exposed miles of sand-bars. Here they follow the water's edge and wade in up to the full length of their long legs, feeding on animalculæ and small larvæ for which their bill is peculiarly adapted, having the same flexible tip as that of the Wilson's snipe. With the rising water, first the small sandpipers, then the larger birds, are driven from the flats; last of all the godwit. They start in flocks of from ten to twenty and keep well in the centre of the lagoon, flying over the flooded flats, avoiding carefully all land, even the farthest points and islands.

The long black lines of birds undulating in their flight can readily be distinguished from any other shore-bird. They have a very dark appearance. In a short half-hour the last flocks have passed and there is no further flight until the next tide. At high water they congregate on the upper beaches, well out of reach of any disturber. For a long time it was impossible to

arrange a blind in the range of the flight, but finally by piling up heaps of seaweed and staking them down far out in the shallow water, we managed to kill a small number. They quickly learned the danger, however, and would keep on their course just out of reach.

Late in September the young birds are more readily shot, as they frequently come on to the marshes. The godwit is a silent bird, and I have seldom heard a note. The flesh is excellent, perhaps the best of all the shore-birds. On its spring migration the Hudsonian godwit is found through various parts of the interior of the United States; here it passes up the Mississippi Valley with the golden plover and they are killed in some numbers in the Western states in May, where they find their way occasionally into the markets; but the birds waste little time en route and are generally in poor condition. The breeding-ground is in the far Barren Lands of the Arctic regions. June is the incubation time; the nest is a mere depression on the ground containing three or four eggs.

BLACK-TAILED GODWIT

(*Limosa limosa*)

Adult male and female in breeding plumage — Head, neck, and jugulum, cinnamon, the head streaked and the jugulum barred with dusky; remaining lower parts, white, with dusky bars on breast and sides; back and scapulars, mixed with black, cinna-

mon, and gray; wing-coverts, brownish gray, greater coverts tipped with white, forming a conspicuous patch; rump, long upper tail-coverts, and most of the tail, dusky; upper tail-coverts and base of the tail, white; axillars and lining of the wing, white.

Female — Less highly colored than the male and larger.

Adult male and female in winter plumage — Upper parts, dark brownish gray, lightest on the head and neck; jugulum, pale gray; other lower parts, white; otherwise as in summer.

Young — Head, dull brown, feathers edged with rufous, an indistinct light buff line passing from the base of the bill beyond the eye; neck, dark buff; back, brown, with an occasional darker feather; all the feathers tipped with rufous; greater wing-coverts, dull gray, tipped with white; middle coverts, brown, tipped with buff; sides of head, neck, and breast, buff; bill, blackish brown, orange at base; legs and feet, black; iris, brown.

Downy young — Rusty yellow; spotted above, especially on crown and rump, with black; line through eye, cheeks, and belly, pale yellowish.

Measurements — Length, 15.75 inches; wing, 8 inches; culmen, 4.25 inches; tarsus, 2.80 inches.

Eggs — Three to four in number, light olive-brown in color, blotched with darker brown; measure 2.17 by 1.50 inches.

Habitat — Breeds in Iceland, in Europe from Holland to Scandinavia, Russia, and western Siberia, north to the Arctic circle. Winters from Spain and the coast of the Mediterranean sometimes south to Abyssinia and Madeira, occurring in Great Britain in migration. One taken near Godthaab, Greenland, about 1830.

The black-tailed godwit belongs to the Old World, frequenting the northern parts of the European continent, migrating south in winter to Africa. Its occasional occurrence in Greenland has caused it to be included in the American Check-List.

In the desolate marshes found in some parts of north central Europe, this species carries on

the duties of nidification, laying its four dark eggs early in May, in a rather deep hollow lined with a few grasses, in some dry tussock. Sometimes in such places colonies may be found, many pairs selecting the same locality to rear their young. Shy as a rule, at this season they lose all fear and attack man, cow, horse, or hawk, swooping at the head of the invader with a loud *tyii, tyii*, and not losing courage, though many may be shot. The downy young, when only a day or so old, wander among the coarse grasses, calling plaintively when the rank growth hides them from one another.

EUROPEAN GREENSHANK

(*Totanus nebularius*)

Adult male and female in breeding plumage — Top of head, neck, scapulars, and back, gray, striped with black, margin of feathers, white; wing-coverts, dark brown, edged with white; primaries, blackish brown, with white shafts to first; lower back, rump, and upper tail-coverts, white, with irregular bars of black on the tail-coverts; central tail feathers, gray, with dusky bars; the two next to central, barred with black; others, pure white; under parts, white; neck and breast, streaked and spotted with black; iris, brown; bill, black; legs and feet, olive-green.

Adult male and female in winter plumage — Above, pale ash-gray, feathers, tipped with white and with dark shaft streak; forehead, white; lores and centre of forehead, dusky; under parts, pure white.

Young — Similar to adults in winter, but more tinged with rufous brown above, and feathers spotted with whitish brown; central tail feathers, white, barred with black; chest and sides of breast, streaked and spotted with dusky.

Downy young — Above, black and gray, tinged with reddish; forehead, sides of head and entire under parts, white; line through eye, on forehead, and spot on crown, black.

Measurements — Length, 14.50 inches; culmen, 2.25 inches; wing, 7.50 inches; tarsus, 2.25 inches.

Eggs — Four; pale yellowish green, spotted with dark brown and pale gray; measure 1.90 by 1.35 inches.

Habitat — Breeds in Scotland, northern Europe, and northern Siberia. Winters on the coasts of the Mediterranean, throughout Africa to Cape Colony, in India, the Malay Archipelago, Australia, China, and Japan. In migration, ranges throughout the eastern hemisphere, from the Canary Islands to Norfolk Island and the Commander Islands, and has been recorded from Chili, Argentina, and Florida.

The only reason for including this bird in the North American list is the single instance of its capture by Audubon, on Sand Key, near Cape Sable, Florida. Here three specimens were taken, May 28, 1832. They were all males, and were mistaken at the time for yellowlegs.

This species has many of the habits of the greater yellowlegs, moving the head in the same manner when suspicious of danger, but seldom occurring in such large flocks. In the winter, in Egypt, single birds are occasionally seen standing on the banks of the Nile, or in small pools left on the sand-flats by the retreating waters, and even feeding quietly at the water's edge, amidst the roar of the First Cataract. They seem to have little fear of danger, and are easily approached. In the breeding season the greenshank prefers woodland lakes and streams, laying

its eggs on the ground, usually close to the shore, but sometimes taking an open spot in the woods some distance from water. The female sits close, and when the young are hatched both parents are very brave and noisy.

GREATER YELLOWLEGS

(*Totanus melanoleucus*)

Adult male and female in breeding plumage — Top of head, neck, upper parts, slate-black, variegated with pale gray and white, the latter in the form of spots along the edge of the feathers, including the wing-coverts and tertials; nape, grayish white, with dusky streaks; upper tail-coverts, white, irregularly barred with dusky; primaries, dark slate; tail, white, all the feathers barred with dusky; middle feathers, gray; cheeks, ear-coverts, neck, breast, and sides, streaked and transversely spotted with dusky; throat and abdomen, pure white.

Adult male and female in winter plumage — Upper parts, light gray, without the black, but with the white spotting; neck and jugulum, finely streaked with dusky; breast and abdomen, white, the flanks irregularly marked with gray.

Young — Similar to the winter dress, but darker, the white spotting tinged with buff; bill, black; iris, brown; legs and feet, deep yellow.

Measurements — Length, 13.75 inches; wing, 7.40 inches; culmen, 2.20 inches; tarsus, 2.45 inches; middle toe, 1.50 inches.

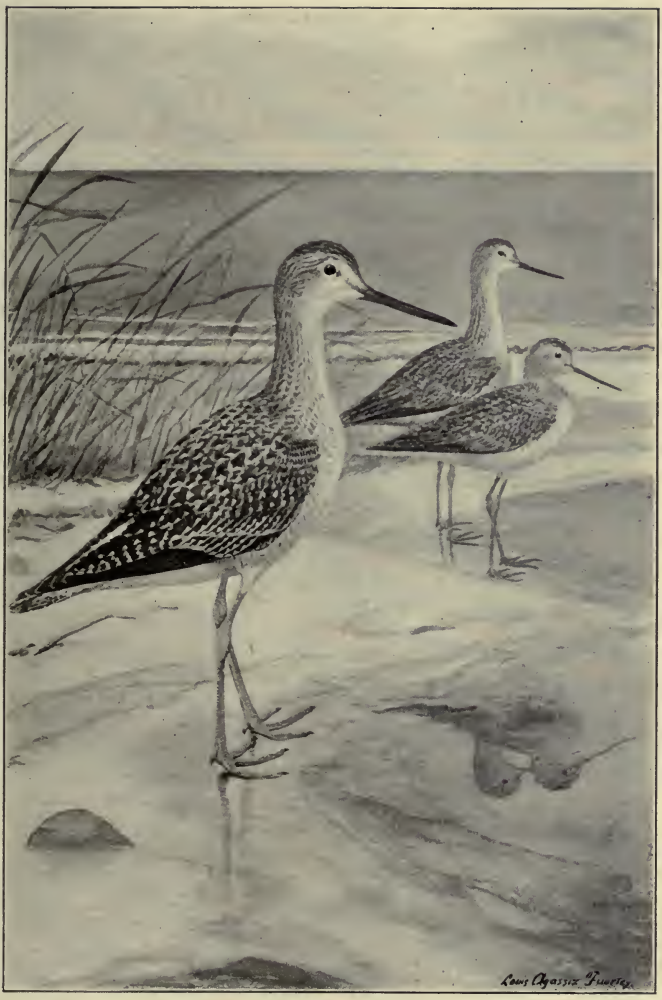
Eggs — Four in number; grayish white with dark brown spots, the brown in various shades; measure 1.75 by 1.30 inches.

Habitat — Breeds from Anticosti and British Columbia, north to Labrador and Fort Simpson, Mackenzie River, rarely south to Illinois and Nebraska, and possibly Wyoming. Winters from the Bahamas, Florida, rarely North Carolina, Louisiana, British Columbia, and southern California, south to Argentina, Chili, and Patagonia, to the Straits of Magellan. In both Louisiana and Argentina it is found all the year, and has been thought to breed

in Patagonia. It has been taken in Cumberland and Cook Inlet, Alaska. Common in migration throughout the United States, and occurs in Bermuda.

The greater yellowlegs is one of our most widely distributed and well-known shore-birds, passing along both coasts and through the interior on its spring and fall migrations. In early August we hear its mellow whistle on the marshes and flats of the eastern shore, a welcome sound, announcing the time for the first shore-bird shooting is at hand, and he who loves this sport braves mosquitoes and goes early to the marsh. When migrating south, these birds fly in large flocks, often some distance offshore. On reaching the haunts along their course where they are in the habit of stopping to rest and feed, the large bands break up and the birds scatter over the marshes and flats, keeping by themselves or mingling with the numbers of big and little shore-birds that frequent the beaches.

The greater yellowlegs is a sociable bird, and when alone usually makes its presence known by the shrill whistle which too often receives an answer from a gunner's blind. When coming to decoys, the birds set their wings, swooping among the stools; jumping up with a frightened yelp on seeing their mistake, they offer an easy chance. A short sojourn on good feeding-grounds quickly fattens them, but the flesh is not equal to that of



GREATER YELLOWLEGS

the small yellowlegs. Both varieties of this bird have the habit, when on the ground, of tilting the bodies if their attention is attracted. The adult birds are killed along our coast until late August, and are followed in September by the young. These are often preceded by heavy weather and wind. The first usually appear early in the month, and are found until late in October. They are easily called up within range and killed, often coming back repeatedly to their wounded until the whole flock is destroyed, or a single survivor wings his way convinced. Flocks of yellowlegs pass through the interior and follow the watercourses south, wintering over a wide area in South America, on the plains of the Argentine Republic, and Patagonia. In localities where they are not disturbed the birds quickly become gentle, and pay little heed to man; tipping their body in an inquisitive way, they watch him for a minute, then feed along the edge of the pond, rising when approached too close, to settle a short distance off and go through the same action.

In Mexico, in May, 1901, we found them in sparing numbers on the ponds and mesa lakes, associating with the teal, sometimes with black-necked stilt, paying little heed to our presence. The return flight north is along the coasts, where they are regularly taken every spring, but in

rather small numbers, and the large body undoubtedly pass through the interior, up the Mississippi Valley, along with small yellowlegs and various other members of our shore-bird families. At this time they hurry along, spending but little time en route.

On the marshes of Long Island and New England a few are seen late in April, but this date is early, and May is the most likely time for the appearance of those birds passing north along the coast.

The breeding-ground is in the far North, but a few birds undoubtedly rarely nest within our boundaries. Incubation is begun in June, the birds selecting a marsh along some inland lake or perhaps close to the shore, laying their eggs in a slight depression on the ground. By late July the young are left to care for themselves.

GRAY YELLOWLEGS

(*Totanus melanoleucus frazari*)

Adult in breeding plumage — Similar to *T. melanoleucus*, but slightly larger; with broader white edgings to the feathers of the upper parts, especially the crown and nape; the dark markings of the lower parts extending farther over the abdomen in the form of broad black bars, and the white chin invaded by small black dots.

Adults and young in winter — Similar to *T. melanoleucus* but "much grayer, the white streaks of the nape and top of head broader, the dark streaks of the jugulum, breast, and sides of neck and the dark bars on the sides fewer, finer, and fainter; the sides of

the head whiter, with less dark mottling;" the feathers of back broadly edged with ashy white.

Measurements—(Averages of seven specimens), length, 14.20 inches; wing, 7.65 inches; culmen, 2.25 inches; tarsus, 2.60 inches.

Habitat — Undetermined; probably breeds in western British America and British Columbia, and passes chiefly through western United States to western South America in winter. Occurs in migration in Lower California, North Dakota, Massachusetts, South Carolina, and Florida.

This race of the greater yellowlegs has been recently described by Mr. William Brewster (Bulletin of the Museum of Comparative Zoology at Harvard College, Vol. XLI, No. 1, p. 65) from a series of over twenty birds in winter plumage that were collected in Lower California, by Mr. M. A. Frazar, in the fall of 1887. These birds, a number of which I have seen, thanks to the kindness of Mr. Brewster, all closely resemble the type, and are much grayer above, with much broader, whitish borders to the feathers, than greater yellowlegs from the Atlantic Coast. Mr. Brewster states that he has seen specimens of the gray yellowlegs from South Carolina and Florida, and refers to this form three young yellowlegs taken by the writer on Monomoy Island, Massachusetts, in September, 1894. In this I thoroughly agree, and identify also with it an adult taken there in September, 1892, and two adults which I collected in North Dakota in the spring of 1895. These birds differ noticeably in the manner described above from typical examples of *T. melanoleucus*

in identical phases of plumage from the Atlantic Coast, so that there seems little doubt that *frazari* must be accepted as a valid subspecies.

The exact range of this bird is as yet undetermined, but it will probably prove to breed west of Hudson Bay, and pass chiefly west of the Mississippi in migration. Intermediates occur in New England in spring. That the greater yellowlegs also occurs on the Pacific Coast is proven by one that Mr. Brewster has seen from British Columbia.

LESSER YELLOWLEGS

(*Totanus flavipes*)

Adult male and female in breeding plumage — Top of head and neck, streaked with black on a grayish ground, and edged with white; back and scapulars, dark ashy mixed with irregular blotches of black and white; primaries, dark brown; upper tail-coverts, pure white with transverse dusky bars; tail, white, central feathers, gray, and all with transverse bars of ash; lower parts, white; the jugulum and breast profusely streaked with dusky; the sides marked with transverse marks of the same color.

Adult male and female in winter plumage — Upper parts, ashy gray, slightly variegated on scapulars and wing-coverts with transverse spots of dusky, the feathers margined with white; streaks are almost absent from the head, neck, and jugulum, which are uniform light gray, edged with white; chin, throat, and under parts, white.

Young — Resembles the winter plumage, but the light markings on the upper parts are more or less tinged with buff; bill, black; iris, brown; legs and feet, yellow.

Downy young — Upper parts and thighs, seal-brown; many of the feathers tipped with cream-buff; forehead, sides of head and streaks on rump, buffy white; lines on forehead, and from bill

through eye to nape, seal-brown; throat and abdomen, white; rest of lower parts, buffy white.

Measurements — Length, 11 inches; wing, 6 inches; culmen, 1.50 inches; tarsus, 2 inches.

Eggs — Four in number; light drab in color, with blotches and spots of brown; measure 1.68 by 1.12 inches.

Habitat — Breeds from northern Quebec, Kenewatin, and Assiniboia, and probably British Columbia, to the Arctic Coast of Alaska and the Barren Grounds, and has been reported breeding in western New York, Illinois, and in Chili. Winters from the West Indies, Florida, Louisiana, and southern California to Argentina, Chili, and Patagonia, and is reported in Louisiana, Argentina, and Chili through all the year. On the Atlantic Coast of the United States it is common in fall, but very rare in spring; common at both seasons in the Mississippi Valley, and rare west of the Rocky Mountains south of British Columbia. It has been recorded from the Pribilof Islands, Greenland, and Great Britain, and occurs in Bermuda.

A smaller edition of the greater yellowlegs, this bird is one of our best-known and widely distributed shore-birds, occurring throughout North America, extending generally into South America as far as Patagonia. In the United States the lesser yellowlegs is a regular summer visitor to the marshes that line the Atlantic Coast; arriving early in August, they are among the first of our shore-birds to start the procession south. On the coast in the salt-water marshes and meadows, where the grass is short, are their favorite haunts, and the clear note of a summer yellowleg is perhaps the first welcome sound in the early morning heard from the blind on the marsh. Soon the birds are in evidence, and, if within hearing

distance, can usually be called up to the decoys; if permitted, they drop among the stool and gaze at the wooden snipe in blank surprise. After the first shot the flock often return, and, if skilfully whistled, hover over the wounded birds. The readiness with which they court destruction has resulted in their being driven from many of the old-time resorts, and this common, friendly bird may easily become rare. The young of the year migrate along the same course as the adults, but appear later, usually about the last week of August. For a short time after the first long flights the birds are in poor condition; but they soon fatten on their favorite feeding-grounds, and the dainty flavor of the flesh is highly esteemed. In the summer the lesser yellowlegs pass along through the United States, in the interior as well as along the coast. The return flight, however, in the spring is made by the shortest route to the breeding-grounds, the birds following along the Mississippi Valley and the larger adjacent water-courses, north into the fur countries. These are reached in June, and here they scatter through the smaller lakes and rivers of the Arctic regions, breeding on the shores and marshes. The eggs are laid on the ground with hardly the formality of a nest. At this season the yellowlegs, after the custom of many other of our shore-birds, changes to a certain extent its ordinary habit, often perch-

ing on trees and bushes, if there are such in the vicinity of the nest. The note is varied and both birds become very noisy, resenting with loud cries any approach near the nest. The young are hatched in July and rapidly attain the age of looking out for themselves, for by the end of the month the old birds leave them and gather in the first migratory flocks.

COMMON REDSHANK

(*Totanus totanus*)

Male and female in breeding plumage — Upper parts, grayish brown; scapulars and interscapulars, spotted with black and notched with buff; lesser wing-coverts, edged with light gray; lower back, rump, and upper tail-coverts, white, the last barred with black; crown, dark brown, feathers edged with buff; lores, blackish; primaries, blackish brown, the inner feathers tipped with whitish, which is barred with brown; outer secondaries, white; inner secondaries, brown, mottled with white; tail, white, barred with blackish, the central feathers chiefly brownish; sides of head, neck, and entire under parts, white, spotted and barred with dusky, except in centre of abdomen; bill, black, red near base; feet, bright orange-red; iris, brown.

Male and female in winter — Similar, but upper parts, including wing-coverts and the inner secondaries, dark grayish brown; dark markings on face and lower parts, fewer; fore neck, chest, and sides of breast, uniform ashy brown; bill, dark brown; feet, yellow.

Young — Similar to winter plumage of adults, but more spotted above, with reddish brown at the edges of the feathers, and white or fulvous markings on wing-coverts and inner secondaries; fore neck and breast, irregularly spotted with brown.

Downy young — Above, reddish, striped longitudinally with black through eye, centre of crown, nape, hind neck, and centre of back; centre of crown, rufous; sides of head and lines on back, buff.

Measurements — Length, 9.75 inches; wing, 6 inches; tail, 2.40 inches; culmen, 1.50 inches; tarsus, 1.65 inches.

Eggs — Four; pyriform; buff, spotted with dark brown and gray; measure 1.75 by 1.25 inches.

Habitat — Breeds in Iceland, the Faroe Islands, throughout Europe, northern Africa, Asia Minor, Turkestan, and Siberia, south of 55°. Winters in Great Britain, northern Europe, throughout Africa, and southern Asia from India to China, Japan, the Philippines, and the Malay Archipelago. This species was recorded from Hudson Bay, in Swainson and Richardson's "Fauna Boreali-Americana," in 1831.

The redshank is one of the commonest shore-birds, breeding in Great Britain, seeking the retired marshes for a summer home, and laying in April and May. The nest is carefully hidden in a tuft of grass, the grass stems often being drawn together over it, and the bird enters and leaves the nest on the side and walks away, so that hardly anything remains to show the location. The parents are very noisy when the nest is approached and leave it long before any one draws near. When mating the male often soars in the air, making a trill, or bows and struts before his mate, spreading his wings and tail; sometimes the bird goes through the latter performance walking a fence rail.

SOLITARY SANDPIPER

(*Helodromas solitarius*)

Adult male and female in breeding plumage — Upper parts, olive-slate, speckled slightly with white; top of head and neck, streaked with white; outer upper tail-coverts, barred with white; primaries and coverts, slate-black; tail, white, central feathers

dusky, all the feathers crossed with dark bars; eyelids, supraloral stripe, and lower parts, white; the sides of head, neck entire, and jugulum, streaked with brownish slate; remaining lower parts, white; lining of wing and axillars, slate, irregularly barred with white.

Adult male and female in winter plumage — Upper parts, dark ashy, less distinctly speckled; neck, very indistinctly streaked with ashy, otherwise similar to breeding plumage.

Young — Upper parts, grayish brown, thickly speckled with pale buff; crown and neck, plain brownish gray; cheeks and sides of neck, gray streaked with dusky; bill, dusky; iris, brown; legs and feet, olive.

Measurements — Length, 8.50 inches; wing, 5.25 inches; culmen, 1.25 inches; tarsus, 1.25 inches; middle toe, 1 inch.

Eggs — Not described.

Habitat — Recorded in the breeding season in Louisiana, from the mountains of Maryland, Pennsylvania, New York, Kentucky, and Colorado, and from Massachusetts, Maine, New Hampshire, Vermont, Ohio, Indiana, Illinois, Minnesota, and Kansas, north to northern Labrador, Hudson Bay, Fort Simpson, and Kotzebue Sound, Alaska. Winters from the West Indies south to Uruguay, Argentina, and Peru. Common in migrations about small bodies of water in the United States west to the Rocky Mountains, replaced beyond them, as a rule, by the western subspecies. Recorded from Bermuda, Lower California, British Columbia, Greenland, and Great Britain.

Sometimes called the wood tattler, this dainty sandpiper is most often found along the shores of our wooded lakes, — sometimes alone, usually in a small flock. We find them often at a high altitude in the mountains. Little mud-holes filled with old stumps and logs, the shores lined with dead wet leaves, are their favorite haunts. Here they run about from place to place, searching for little grubs and worms that such locations abound

in. When startled, teetering the body as if to gaze at the intruder from all points of view, then darting through the air on graceful flight, they utter as they start a high-pitched, mournful note, and pass on over the tree-tops to some other pool, where no disturber interferes with their affairs. Sometimes on these ponds in the woods we come across a solitary sandpiper, quietly walking over the soft mud, unconscious of danger; silent and still as if affected by the solitude of the place, yet in the jaunty manner of its flight, changing its character and giving expression to the happiness of life. In the spring of the year, by early April, we find them in their solitary resorts tarrying awhile, then disappearing to breed and raise their young, no one knows where.

The young birds appear in September and at this time rarely straggle out on the marshes and flats in company of other shore-birds.

The solitary sandpiper undoubtedly breeds as far south as our northern boundary, and it is a strange fact there are no more satisfactory records of its nesting. The instance of a single egg, found at Lake Bombazine, Vermont, by Jenness Richardson, is questioned. This egg was seen by Mr. C. A. Sheldon, who was with Mr. Richardson at the time, and in his opinion the identification is doubtful.

At its breeding-grounds this bird has a song

flight resembling that of many other shore-birds. The male wheels high in air on rapidly beating wings, uttering often a weak song, and then alights on the top of some spruce.

A set of five eggs ascribed to this species, the parent of which was seen closely but not secured, was taken on an island in Lake Ontario, June 10, 1898. The eggs, averaging 1.32 inches long by .95 inch wide, had, when found, a dark reddish ground color with faint purple markings and grotesque brown figures, scattered over the shell, and were laid on the ground in a hilly field near the lake.

WESTERN SOLITARY SANDPIPER

(*Helodromas solitarius cinnamomeus*)

Similar to the solitary sandpiper, but "larger, wings grayer, the light spots on the back, scapulars, and wing-coverts, brownish cinnamon instead of white or buffy whitish; the sides of the head with more whitish, especially on lores. No well-defined loral stripe." The outer primary is mottled with ashy white some distance beyond the tips of the under primary coverts, this marking seldom occurring in solitary sandpipers taken in the East. The differences in color are more pronounced in young birds in juvenile plumage.

Habitat — Found in the breeding season from the interior of British Columbia, north to the upper Yukon in Alaska, and recorded in migrations from California and Lower California to Montana, North Dakota, and Arizona. The exact limits of the range of this subspecies are as yet doubtful, but in winter it probably ranges south to Peru.

The habits of this bird are like those of the eastern subspecies.

GREEN SANDPIPER

(*Helodromas ochropus*)

Adult male and female in breeding plumage — Head and neck, striped with dark brown and white; upper parts, olive-brown, with white spots; upper tail-coverts, pure white, middle feathers, barred with black toward tip; chin, throat, and under parts, white, dusky streaks on fore neck and breast; bill, dusky; legs and feet, bluish gray, green at the joints.

Adult male and female in winter plumage — Head and neck, grayish brown, without spots, — these are also faint on the upper parts; white superciliary stripe; otherwise similar to breeding plumage.

Young — Similar to adult in winter; but feathers of upper parts narrowly edged with ashy bronze.

Downy young — Upper parts, grayish buff and rufous, spotted with black; a broad black band extends from crown to rump, and narrow black stripes, from bill through eye to nape, on side of crown, and side of body; lower parts, white.

Measurements — Length, 10 inches; wing, 5.25 inches; culmen, 1.25 inches; tarsus, 1.25 inches.

Eggs — Four; pyriform; creamy white to greenish white, spotted with dark reddish brown and pale grayish brown; measure 1.50 by 1.10 inches.

Habitat — Breeds in the mountains of southern and central Europe, in Scandinavia, Russia, and Siberia, south to Turkestan. Winters in southern Europe, central Africa, India, Malay Archipelago, China, and Japan. Has been recorded from Hudson Bay and Nova Scotia, in North America.

In its habits in the winter in Egypt, the green sandpiper much resembles our solitary sandpiper, never occurring in flocks, and frequenting the irrigation ditches and the muddy pools left by the retreating Nile.

In the breeding season this species frequents retired ponds, surrounded by woodland, and breeds

in May. The eggs are laid in the deserted nest of some jay, crow, or thrush, and at a height of from three to forty feet from the ground.

WILLET

(*Symphemia semipalmata*)

Adult male and female in breeding plumage — Upper parts, light brownish gray; head and neck, streaked with dusky; back and wing-coverts, spotted and barred with blackish; under parts, white, tinged with gray on the neck, with buff on the sides; the sides with the jugulum and breast, spotted and barred with dusky; upper tail-coverts, white; tail, ash-gray, mottled with darker; axillars and lining of wings, sooty black.

Adult male and female in winter plumage — Upper parts, ash-gray; under parts, dull white. Neck, in front shaded with gray.

Young — Upper parts, brownish gray, the feathers margined with buff; sides, tinged with the same color, and finely mottled with gray; bill, gray, dusky at its end; iris, brown; feet, gray blue; claws, black.

Downy young — Upper parts, brownish gray, spotted with dusky; dusky lines on lores, and from eye to occiput and nape; forehead, sides of head, and lower parts, dull white.

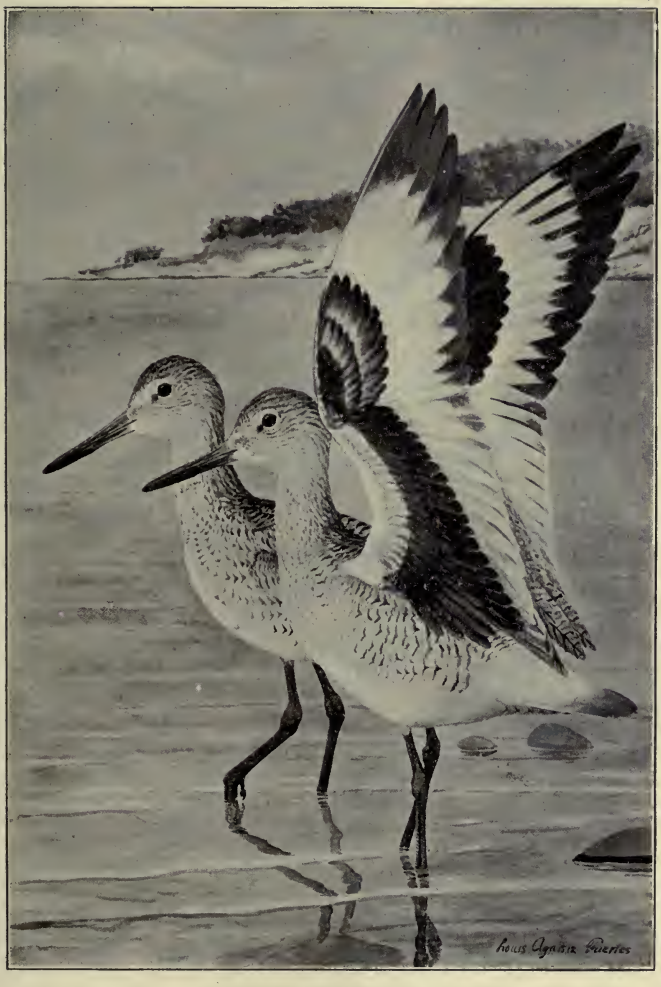
Measurements — Length, 15 inches; wing, 7.35 inches; culmen, 2.20 inches; tarsus, 2.30 inches; tail, 2.90 inches.

Eggs — Four in number; color, light gray, with fine dottings of dark bistre; measure 2 inches by 1.50 inches.

Habitat — Breeds on the Bahamas, and from Florida, north to New Jersey, and irregularly to Massachusetts and Michigan (?). Winters from Florida, rarely North Carolina, the Bahamas, and West Indies, south to Brazil. Formerly recorded on the Atlantic Coast, north to Newfoundland, but now, apparently, the majority of birds taken in the fall on the Atlantic Coast north of Virginia belong to the western subspecies. Has occurred in Bermuda and Europe.

One of our best-known shore-birds, now separated into two forms, the eastern and the

western. While the western variety seems to average somewhat larger and has certain slight plumage differences, the two types grade into one another, and these distinctions are not always satisfactory. On the eastern coast the willet ranges from Nova Scotia to Florida and along the Gulf of Mexico, but is rare north of Massachusetts. It breeds throughout these limits sparingly, however, north of Florida. In our Eastern states this species has been markedly decimated in the past few years, and not having the protection of the seclusion the far North affords to most of our shore-birds in their nesting time, it will presently be rare everywhere in the eastern United States. A few years ago willet bred commonly on the coast from Virginia to New Jersey. Now a few pairs are seen over an area formerly inhabited by hundreds. In 1898 I found several pairs at Cobb's Island, breeding on a small strip of marsh, just inside the ocean beach. When this was approached the birds exhibited the greatest excitement flying within range and uttering shrill discordant cries. When on the wing it is graceful and speedy, the black and white mottling of the wings presenting a striking appearance. On alighting the bird runs a short distance, then watches intently the object of suspicion, leaving at the slightest provocation. The nest is composed of grass placed on the dry ground in the



WILLETS

salt marshes, sometimes built up to a height of a few inches. The eggs are always four in number. Incubation is begun late in May. The flesh of the willet has never been esteemed, but the eggs were regularly robbed by the natives, who considered them a delicacy. This destruction of the eggs in the old breeding localities undoubtedly goes far to explain the present scarcity of the bird. One of the gunners at Cobb's Island told me it was no uncommon thing in years gone by to fill a small basket with willet's eggs. Crows occasionally invade the nesting territory, causing consternation and excitement, the birds all combining to drive off the intruders. The young are cared for with the greatest devotion; few parents are more persistent in their attention. Late in July, full fledged, we see them sometimes in small flocks, or with gulls and other smaller birds, often alone. They feed on various aquatic insects and little shellfish and crabs. The young birds are not particularly wild, and, if by themselves, can frequently be coaxed within range by imitation of the note, a shrill *pill-will-willet.* It is rather exceptional for decoys to attract them, although at times they fly overhead. The plumage of the birds in the first year is a soft gray and white, having the same peculiar black and white wing markings as the adult. A few years ago numbers of young willet were shot regularly off Cape Cod in early

August; north of this point less often, increasing in abundance from Long Island south. Now a few odd birds are all that are seen. It is met with throughout the interior to the middle of the United States, and often on the marshes has the reputation of acting as sentinel for other birds in the vicinity, quickly sounding the alarm and starting the flock. In winter the willet is found on the larger West Indian Islands, south to Brazil.

WESTERN WILLET

(*Symphemia semipalmata inornata*)

Adult male and female in breeding plumage — Similar to *S. semipalmata*, but the dark markings on the upper parts, fewer, finer, and fainter, on a paler ground; those on the under parts, duller and more irregular; middle tail feathers, white or faintly barred; bill, longer and slenderer.

Winter plumage and young — Similar in the two varieties.

Measurements — Length, 15.25 inches; wing, 8.10 inches; tail, 3.30 inches; tarsus, 2.65 inches; culmen, 2.65 inches.

Eggs — Not distinguishable from the eastern variety.

Habitat — Breeds from Louisiana and Texas north to Manitoba, Athabasca, and Alberta, and west to Oregon, Nevada (?), Utah, and Colorado. Winters on the Gulf Coast of Florida, and from Louisiana, Texas, and southern California, south into Mexico. In the fall migration occurs on the Atlantic Coast from New England south, and in British Columbia and California, and has been doubtfully recorded in summer from the Yukon Valley.

This variety resembles the eastern bird, but is somewhat larger and generally can be distinguished by its longer bill. The plumage differences are unreliable. The western willet is

common in the western United States, Texas, and California. Along the west coast it is very numerous, and in locations is plentiful throughout the year. This bird is abundant on the prairie, frequenting the sloughs and small alkali lakes. In all of its habits it closely resembles the eastern species. In the breeding season if one approaches the nesting-place of a pair of these birds, — generally some small slough on the prairie, — he is deafened by an unearthly clamor; first one, then both birds, diving for his head and shrieking *pill-willet* until he decides to leave.

WANDERING TATTLER

(*Heteractitis incanus*)

Adult male and female in breeding plumage — Upper parts, dark lead color; primaries, dark brown, with white shafts; superciliary stripe, sides of face, white, finely streaked with dark gray; throat, white, spotted with dark gray; rest of under parts, white, barred with plumbeous; bill, dusky; feet and legs, greenish yellow.

Adult male and female in winter plumage — Upper parts, plumbeous; lower parts, white, washed with plumbeous on sides and across jugulum.

Young — Resembles the winter plumage, but secondaries, scapulars, and upper tail-coverts indistinctly margined with white, and the plumbeous of sides faintly mottled with white.

Measurements — Length, 8 inches; wing, 6.50 inches; culmen, 1.50 inches; tarsus, 1.25 inches; middle toe, 1 inch.

Eggs — Not described.

Habitat — Breeding range unknown, but a statement that it breeds commonly in British Columbia is probably a mistake. Occurs on the coast of Alaska, from Lynn Canal to Bering Straits, Kamchatka, northeastern Siberia, and the Aleutian, Pribilof, and

Commander islands in migration, in late May and early June, and late July, August, and September. Ranges south on the Pacific Coast of North America, occurring as far inland as Hudson Bay and Crater Lake, Oregon; and winters from Lower California south to the Galapagos, Hawaii, and islands of Oceanica, and is found on the Hawaiian Islands throughout the year.

A bird of wide range, the wandering tattler traverses the Pacific Coast from the tropics to the Aleutian Islands and into the interior of Alaska, along the watercourses. It breeds on the Pacific islands within the Arctic circle, but the nest and eggs have not been found. Usually alone, this bird is sometimes seen in small flocks, and frequents the rocky shores, running gracefully at the edge of the water and feeding on the minute shellfish and animal life among the seaweed. It is gentle, and when approached runs ahead out of reach or flies a short distance, uttering a shrill note, then lighting to stop and gaze at its disturber. By September they leave for their winter homes, returning again in May to the snow and ice of the North.

RUFF

(*Pavoncella pugnax*)

Adult male in breeding plumage — Head, neck, and upper parts, chestnut, barred with black, or buff and gray, barred with black; under parts, white with variations on jugulum and throat; primaries, dark brown with greenish reflections; inner webs, finely mottled; outer three tail feathers, plain brown; remainder, transversely barred; sides of rump, white; feathers of the neck,

greatly developed into a ruff, the face covered with reddish papillæ. In coloring, this ruff varies greatly from glossy black to white, with all shades of brown and buff and mixtures between. The cape shows the same variation. In the winter plumage the male has no ruff.

Adult female — Without the ruff, head completely feathered; plumage, banded transversely with black and buff or white; abdomen, generally white.

Young — Upper parts, brownish black, feathers bordered with buff; crown, streaked with black; lower parts, white with a buff tinge anteriorly; bill, brown; iris, brown; legs, yellow.

Measurements — Length, 10 to 12 inches; wing, 6.50 inches; culmen, 1.50 inches; tarsus, 1.75 inches; middle toe, 1.25 inches.

Eggs — Four in number; greenish gray, spotted with brown, measure 1.60 by 1.10 inches.

Habitat — Breeds from Great Britain, Holland, and the Danube River, east through Russia to central Siberia, and north to the Arctic Ocean. Winters throughout Africa and in India and Burma. Wanders east to the Commander Islands, Japan, and Borneo, and west to Spanish Guiana, Barbadoes, and eastern North America, where some fourteen specimens have been taken, in New Brunswick, Maine, Massachusetts, New York, New Jersey, Virginia, North Carolina, Ohio, and Ontario.

This species is the most remarkable of the Limicolæ, not only from the long ruff of many colors, ranging from deep black to pure white, through many shades of chestnut, brown, and gray, often barred with darker shades, and the black glossed with violet or green, or spangled with white or gold, and the white barred with white or rufous, which is assumed by the male in the breeding season, but also for its polygamous habits, each male taking as many wives as he can

protect from his rivals. The ruffs "hill," that is, assemble in the early morning on some rising ground near a marsh where the reeves have decided to lay, and contend with each other like game-cocks, striking at each other with the beak, with head lowered, the bill horizontal, and the ruff extended and held before the breast as a shield. In former times the males were netted during these spring combats, a drop-net being set over the spot where they assembled, and a stuffed bird used as a decoy; by this means, it is said, every male about a marsh could be caught. The birds taken were fattened for market, eating greedily as soon as caught. By most submissive behavior, too, the ruff seeks to win the reeve, throwing himself on the ground before her, every feather on his body standing and quivering; but as soon as the eggs are laid he deserts his wives and families and joins other males in a renewal of the freedom of his bachelor existence.

BARTRAMIAN SANDPIPER

(*Bartramia longicauda*)

Male and female in breeding plumage—Top of head, back, and scapulars, dusky, the feathers, marked with brown and margined with buff; lores and space around eye, pale buff; rest of head and neck, bright buff, spotted with dark brown; greater wing-coverts, brown, barred on inner web and bordered with white; lesser wing-coverts, brown, barred with dusky and bordered with bright buff; primaries and secondaries, dark brown, barred

on inner web, and secondaries tipped with white; tertiaries, dark brown, barred with black and edged with buff; lower back, rump, and central upper tail-coverts, black; lateral tail-coverts, black at base, then buff, barred with black and edged with white; middle tail feathers slate-gray, barred with black, edged with white; the other tail feathers buff, edged with white, spotted with black, and with a subterminal bar of black; lower parts, buffy white, deepest on lower neck and breast, where spotted and irregularly barred with dark brown, these bars extending on sides; bill, brownish black, yellowish at base; feet and legs, yellowish.

Young — Similar, but buff everywhere deeper and approaching ochraceous buff on head, sides of neck, and outer edges of tertials and upper wing-coverts.

Downy young — Upper parts, grayish white, irregularly spotted with black; dusky spots on lores, auriculars, cheeks, and flanks; lower parts, buffy white.

Measurements — Length, 12 inches; wing, 6.50 inches; culmen, 1.25 inches; tarsus, 2 inches.

Eggs — Three or four; clay color, spotted with brown and purplish gray; measure 1.75 by 1.25 inches.

Habitat — Breeds from Virginia, West Virginia, Ohio, Indiana, Illinois, Kansas, and Colorado, north to Maine, Ontario, the Barren Grounds, Saskatchewan, Athabasca, and probably the Yukon Valley to Fort Yukon, west to the Rocky Mountains, Montana, Idaho, Oregon, and probably Utah. Winters rarely in Florida and Louisiana, and south through South America to Uruguay, Argentina, and Chili. In the migrations occurs chiefly between the Rocky Mountains and the Mississippi, but also to the entire Atlantic Coast, north to Nova Scotia, Newfoundland, and Quebec, the Bermudas and West Indies, and west to Vancouver Island, British Columbia, New Mexico, and Arizona. Rare in the northeastern part of its range. Has been recorded frequently from Great Britain and Europe, and once from Australia.

This species is fully described in the "Upland Game-Birds" volume of this library.

BUFF-BREASTED SANDPIPER

(*Tryngites subruficollis*)

Adult male and female in breeding plumage — Upper parts, dull ochraceous with a tinge of gray, each feather with a spot of black; often there is a glossy greenish tinge on the back; under parts, pale fawn color, palest on the abdomen and sides, many of the feathers tipped with white; axillary feathers, white; middle tail feathers, brown; outer feathers, lighter, with transverse lines of black on the terminal half, tipped with white; under primary coverts, marbled with black; bill, greenish black; legs, greenish yellow; iris, brown.

Young — Similar, but the upper parts have the black and fawn color less sharply contrasted, and each feather is bordered with white; the marbling on the inner webs of primaries and on under-coverts, more minute than in the adult.

Measurements — Length, 8 inches; wing, 5.50 inches; culmen, .75 inch; tarsus, 1.25 inches; middle toe, .75 inch.

Eggs — Four in number; ground color, ashy drab, blotched, and streaked with spots of dark sepia; measure 1.50 by 1.10 inches.

Habitat — Breeds on the Barren Grounds and the Arctic Coast east of the Anderson River, and at Point Barrow, Alaska, and probably in northeastern Siberia; is reported a resident in British Columbia, and is said to have nested in Ontario, — this last doubtless a mistake. Winters in South America to Uruguay and Peru, and is said to winter on the coast of Louisiana. In migrations in the United States, tolerably common in the Mississippi Valley, and in the fall occasionally east to the Atlantic Coast from Nova Scotia to South Carolina; to the west of the Mississippi states unrecorded, except in Texas and from Washington north to the Yukon, Alaska. Stragglers have occurred in the West Indies, Bermuda, Sea of Okhotsk, and frequently in western Europe.

While this species has a general distribution, it is more common in the interior than on the coast. The buff-breasted sandpiper closely resembles the upland plover in appearance, and to

a certain extent in habits. A specimen was once given to me by a Long Island gunner, who called it a young upland plover, and said he usually killed several during the season. On the Atlantic Coast the bird is rare, and usually occurs by itself, or in company with pectoral sandpipers, exceptionally in flocks. On the shores of the Canadian provinces it is still more uncommon, but has been taken near Halifax and Pictou and is recorded from Prince Edward's Island. In several years' experience with the shore shooting on the Magdalen Islands, I know of only one instance of its capture; this was in early September, and the bird was shot among a large flock of pectoral sandpipers. In the New England states it is of irregular occurrence, and is usually taken in late August or September. Throughout the prairie states the buff-breast is common, arriving in flocks in August, and is found on the shores and flats of the alkali lakes, often frequenting the fields and plains. The birds are gentle and easily shot, though in this country would hardly be disturbed as game. They pass south through Texas and the southwestern states into Mexico, wintering in various parts of South America and visiting at times the West Indies. The migration north is in May, over the plains to the Arctic regions, where the nest has been taken in Alaska, the Anderson River regions, and the Barren Grounds.

This is on the ground and lined with dried grass, resembling that of the golden plover. During the breeding season the birds are active and demonstrative, pursuing each other closely, often towering to some height in the air.

The strange actions of the males during the breeding season at Point Barrow are described by Murdoch as follows: "A favorite trick is to walk along with one wing stretched to its fullest extent and held high in the air. I have frequently seen solitary birds doing this for their own amusement, when they had no spectators of their own kind. Two would occasionally meet and 'spar' like fighting cocks for a few minutes and then rise together like 'towering' birds, with legs hanging loose for about thirty feet, then drifting off to leeward. A single bird will sometimes stretch himself up to his full height, spread his wings forward, and puff out his throat, making a sort of clucking noise, while one or two others stand by and apparently admire him. They are very silent, even during the breeding season."

The young are hatched rather late in July, and by August all have gone.

SPOTTED SANDPIPER

(*Actitis macularia*)

Adult male and female in breeding plumage — Entire upper parts, lustrous ashy green, irregularly spotted with black, the lustre less noticeable on the neck; a white stripe over the eye;

entire under parts, white, with numerous black markings, small on the throat and large spots on the breast; primaries, dark brown, white on basal portion; tail, marked with a subterminal blackish bar; outer feathers, with dusky and white transverse spots, tipped with white, except central pair.

Young — Above, ashy green, with narrow transverse black bars most numerous on the wing-coverts, feathers, edged with buff; under parts, white, the jugulum suffused with gray; bill, edge of maxilla, and mandible, yellow, remainder dusky; legs and feet, grayish olive; iris, brown.

Downy young — Upper parts, yellowish gray, finely speckled with blackish; a black line from forehead to rump, and another from bill through eye to nape; forehead, sides of head, and lower parts, white.

Measurements — Length, 7.75; wing, 4 inches; culmen, 1 inch; tarsus, 1 inch; middle toe, .75 inch.

Eggs — Four in number; ground color, drab with dark dots and blotches; measures 1.21 by .95 inches.

Habitat — Breeds from South Carolina, Tennessee, Louisiana, Texas, New Mexico, Arizona, and California, north to Sable Island, northern Labrador, Hudson Bay, the Mackenzie Delta, and northwestern Alaska, most abundantly in the northern and eastern part of its range; and is said to be a resident in Jamaica, Grenada, and Costa Rica, and to breed in the last. Winters from the Bermudas, Bahamas, and West Indies, Louisiana, and California, south to southern Brazil and Ecuador. Has been taken frequently in Great Britain and once in Heligoland.

The spotted sandpiper is widely distributed and common throughout the United States and Canada. In summer its note is one of the familiar sounds on all our interior lakes and rivers, calling attention to the sprightly form balancing on a log or rock, bowing its head to you and almost the same moment tipping up the tail, as, uttering

a shrill *peetweet*, the bird takes flight and with quick, stiff beats of its wings moves on to some old stump and goes through the same performance. At this time they have the responsibility of a brood, and there are few more anxious parents. If the young are threatened, their excitement becomes intense; the old birds keep close by, now running along just in front as if wounded, the next minute alighting almost at your feet, uttering all the time their plaintive cry. The female has been observed in the act of carrying one of the young between her thighs while in flight. The young birds hide so well it is difficult to find them, and if necessary have no hesitation in taking to the water, where they swim and dive with the skill of a duckling. Late in the summer we find them in little flocks of from six to eight, the families probably keeping together. They frequent the marshes and often the beaches alongshore. At this time the birds are fat and, while not especially desirable for the table, are shot in some numbers with other small peep.

By the middle of August they are southward bound, while some of the young birds linger later; in the northern United States we see them no more until early in the following spring, when some bright morning in April they turn up, soon frequenting locations where later they will nest. May is their breeding time, and some ploughed

field or dry, short marsh, perhaps a stubble, affords the spot. They lay four eggs on the ground so closely like the surroundings that it is almost impossible to see them. At this time the birds frequent the fields, perching on the fences, and the usual note becomes varied almost into a song, bright and cheery like all around when May is at its height. This species, from its wide distribution and sociable, familiar habits, goes by a variety of names, such as tilt-up or peetweet, and teeter.

LONG-BILLED CURLEW

(*Numenius longirostris*)

Adult male and female in breeding plumage — Upper parts, pale rufous, tinged with gray, each feather marked with transverse bands of black, most numerous on the back and scapulars; feathers of head, striped with black; under wing-coverts and axillars, bright rufous; under parts, pale rufous, and streaks of black on neck and sides; bill, black, becoming light brown on the base of the mandible; legs and feet, gray; iris, brown. Other plumages are similar but vary in the rufous color, which in some instances is pale and worn.

Downy young — Buffy yellow, becoming sulphur-yellow on abdomen; upper part irregularly spotted with black; bill, straight, 1.40 inches in length.

Measurements — Length, 25 inches; wing, 10.50 inches; tail, 4 inches; tarsus, 2.50 inches; culmen, 6 to 8.50 inches in the adult.

Eggs — Three or four in number; ground color, grayish white or buff, spotted and blotched with umber; measure 2.80 by 1.85 inches.

Habitat — Breeds from Texas, western Missouri, Colorado, Utah, Nevada, northeastern California, and probably Arizona, north to eastern British Columbia, Alberta, Assiniboia, and western Manitoba, and probably on the coast of Louisiana and southern Florida. Winters in western California, Lower California, and

from southern Florida, Louisiana, and Texas, south to Cuba, Jamaica, and Mexico to Guatemala. Bred formerly as far east as Ohio, and on the Atlantic Coast, north to southern New Jersey, wintering in North Carolina, and was a common migrant north, at least, to Massachusetts; now a straggler in North America east of the Mississippi and north of Florida. Has been recorded from Newfoundland, Labrador, Alaska, and southwestern British Columbia.

The long-billed curlew is a bird of the past, now threatened with extinction. Formerly common along the Atlantic Coast, particularly in the Southern states, the flocks have been utterly destroyed, so that at the present time the old haunts of the East hardly see this bird as a straggler. Twenty years ago the sicklebill, as this species is commonly called, was abundant in the late fall off Virginia and North Carolina; now it is practically unknown. In Florida, where great numbers wintered, it is rare. When the long-billed curlew frequented the favorite resorts of the South in thousands, the extensive marshes near the coast were the feeding-grounds, the birds flying to the sandy islands offshore to roost and spend the night. At low tide the curlew resorted to the bars exposed by the falling water, having special spots they favored. In a number of instances these places still bear their names, although they have not seen a flock of sicklebill in years. Near Cobb's Island, Virginia, there is a high-water flat, a famous old-time spot for these birds. It

still goes by the name of curlew bar. Now, an occasional yellowlegs and plover patronize it, or a dowitcher, but never a curlew, — not even the Hudsonian, which is common everywhere around. While under ordinary circumstances a wild bird, the long-billed curlew has a peculiar fondness for its own; and the devotion of the flock to the fallen and wounded has undoubtedly been a prominent factor in its destruction, the birds answering the cries of those on the ground and circling again and again. Throughout the wilder parts of the West this species is still found, breeding in parts of Dakota and Montana, and ranging along the plains into Texas, southern California, and Mexico. In parts of Texas large numbers are still seen. A flock of thousands was reported from southern Texas in 1899. In Mexico in May, 1901, I saw these birds occasionally in flocks of ten or fifteen. They were on the high mesas at an altitude of about 7000 feet, usually in the vicinity of rolling hills, and kept to the short, dry grass, feeding on grasshoppers and other insects. Occasionally the Hudsonian curlew mingled with them. Earlier in the spring at Tampico, I saw a few sicklebill about the lagoon, in one instance on the outer beach. This bird undoubtedly breeds over a large part of its range. Captain Bendire found nests in eastern Oregon in wet meadows; it generally utilizes for this purpose the high, dry prairies, con-

structing a rough nest of grass, and laying three or four eggs; the male always watchful, darting at the intruder with loud screaming, while the female lies close. In 1896, while hunting near Ashcroft, British Columbia, I saw several pairs of these birds on the high hills, and was told they regularly bred. The young fly in early August, and when fed on the insects and berries of the interior are excellent eating, while along the shore the flesh has rather a fishy flavor. The long bill is well adapted for picking up the little shellfish and minute crabs on the flats. This species is the largest of our waders, and its former liberal distribution gave it a variety of names, such as Spanish curlew, buzzard curlew, hen-curlew, smoker, saberbill, and mowyer.

EUROPEAN CURLEW

(*Numenius arquatus*)

Male and female in breeding plumage — Upper parts, brown, the feathers with longitudinal black centres and notched with ashy or rufous; wing-coverts, dark brown, edged and marked with whitish; primary-coverts and primaries, blackish, glossed with bottle-green; the primaries and secondaries, notched or barred with brown, buff, or white; lower back, rump, and upper tail-coverts, white, the back and rump, spotted, the tail-coverts, barred with black; tail, white, often tinged with buff and crossed by nine or ten bars of dark brown; head, dark brown, the feathers, edged with sandy buff; a white line bordered with black over eye; sides of face, neck, and chest, ashy or sandy buff, streaked with dark brown; chin, upper throat, and thighs, white; breast, abdomen, sides, and under tail-coverts, white, streaked with dark brown; bill, fleshy brown, darker at tip; feet, dusky; iris, brown.

Adult in winter — Similar, but less heavily striped, especially on under parts.

Young — Like adults but more tawny, and the light markings of inner secondaries, tawny buff.

Measurements — Length, 21 to 24 inches; wing, 11.50 inches; tail, 5 inches; culmen, 4.25 to 6 inches; tarsus, 3 inches.

Eggs — Three or four; light greenish to olive-brown, spotted with olive-brown, umber-brown, and purplish; measure 2.75 by 1.80 inches.

Habitat — Breeds in Great Britain, and from Holland and southern Russia to the White Sea and the Ural Mountains, and possibly in the south of France. Winters in Great Britain and throughout Africa, from the Mediterranean to Cape Colony. In migration has occurred in Iceland, the Azores, and Persia. There is strong evidence to show that a mounted specimen of this species, in the New York State Museum, was prepared by a New York taxidermist, and shot on Long Island, New York, in 1853. This is the only claim of the European curlew to an American registry.

In the wild moorland found in parts of the British Islands, scattered pairs of this curlew make small hollows among the moss and heather, line them with a little grass and moss, and deposit their eggs in them late in April. Then the male stands motionless on some near-by hillock and whistles to the female if any one approaches. She at once runs some distance, then flies rapidly, and returns high in air after making a wide circle, uttering her plaintive cry. High on the hills and often far from water, they spend the summer, not returning to the shore until the young are fledged.

HUDSONIAN CURLEW

(*Numenius hudsonicus*)

Adult male and female in breeding plumage — Top of head, sooty brown, divided longitudinally by a stripe of buff. A narrow dusky stripe from bill to the eye over the ear-coverts, separated from the crown by a superciliary stripe of buff; rest of head, neck, lower parts, light buff; neck, jugulum, and breast, streaked with dark brown; axillars, buff, barred with brown; upper parts, spotted with buff and dark brown; bill, black, yellowish at base of mandible; legs and feet, grayish brown. Other plumages, closely similar.

Measurements — Length, 17 inches; wing, 9.50 inches; culmen, 3.50 inches; tarsus, 2.25 inches.

Eggs — Three to four in number; ground color, drab with large brown spots; measure 2.40 by 1.55 inches.

Habitat — Breeds from St. Michael and Kotzebue Sound, Alaska, to the Barren Grounds near the Anderson River, and probably east to Greenland, where it has been taken, and south to Hudson Bay. Winters from the West Indies, Louisiana, and Lower California, south to the Galapagos Islands, Chili, and Patagonia. In migrations, most common on the Atlantic Coast of North America, and rare in the western interior south of Athabasca. Accidental in Spain, and occurs in Bermuda.

The commonest and most widely distributed of our curlews, this bird passes from the Arctic regions through South America to Patagonia. In North America frequenting both coasts and the interior. The shores of the Atlantic, however, seem to be its favorite range. The Hudsonian curlew arrives on the islands of the Gulf of St. Lawrence early in August, increasing steadily in numbers until late in the month. They are found in the fields where grasshoppers

abound, and have a special fondness for blueberry patches; following the falling tide until the furthermost bars are exposed, and flying on to the dunes with the turning water. Here in localities where berries abound, they congregate in vast flocks. The flight usually is in range of land, and when the birds have been undisturbed the course taken by the successive flocks is generally the same. As the line of birds first comes into view, low down and directly toward you, now almost in range, there are few pleasanter moments in shore-bird shooting. They sheer a little from the place of concealment, when a well-timed whistle brings them within shot. For a short while the birds come thick and fast in flocks of from ten to fifty, then less often, and finally only an occasional belated bird is seen. A few days' shooting in such a location drives them away. On the flats and marshes they come to decoys but in small numbers.

Curlew have the habit of repairing to some particular spot to spend the night, often congregating together in vast numbers. One of these roosts was a small, high island a mile or so from shore. On this the birds gathered in hundreds, the first flocks coming late in the afternoon. Natives in some instances have killed over a hundred birds here in a short time; but one day's shooting is all, then they desert the place. From the

islands in the gulf, the curlew scatter along the coast, working their way south, tarrying where marshes and flats afford feeding-grounds. Formerly Cape Cod and Long Island were regular stopping-places, but now the large majority keep on their flight offshore until further south. The marshes of the Virginia and North Carolina coast are the haunts of many, and we find them here by the middle of August, leaving in September. The young birds follow the adults on the same line of migration, but from three weeks to a month later. These birds are more liable to pass along our shores than the old ones; they are also seen in larger flocks. The curlew's whistle is shrill and clear, and often announces its presence some time before coming into view. If answered from a blind the bird generally replies and circles about the decoys within range, but the fast flight often saves it.

While the flesh of this species is good, and the young birds are excellent, it does not stand in quite the high repute for the table that some of the smaller shore-birds enjoy. The Hudsonian curlew winters over a vast territory, — in Mexico and Central America, through South America, frequenting the pampas of Brazil and Patagonia. The migration north is through the interior of the United States, but more along the Atlantic Coast. The birds appear off North Carolina and

Virginia late in March and here tarry until large numbers have congregated. The latter part of April marks their departure. Between this point and the islands in the Gulf of St. Lawrence, they are not seen in the same vast flocks. Early in April, 1899, while at Cobb's Island, there were several days of high tides, and one afternoon when a perigee tide was at its height and the marshes all inundated, there was a continuous flight of curlew from the late afternoon into evening, and after dark we could hear them passing overhead. I have never seen as many birds of any one kind as on this occasion. Evidently the flocks for miles to the south had been driven from their resting-places at night by the flood. May finds them well on their way to their breeding-grounds, and by the last of the month many have reached their summer home in the remote Arctic regions. Here they nest and raise their young, choosing the wild barrens and placing the nest on the ground, lining it scantily with leaves and grass. In Alaska this is simply a slight hollow in the moss, and while one bird is on the eggs, the other, seated on a twig of some dwarf willow, acts as sentinel, giving a loud whistle when an intruder appears. Then both birds fly toward the approaching danger, wheeling restlessly around and whistling repeatedly.

The eggs are hatched in late June, and by the

last of July the old birds have pushed on, leaving the young to Nature's care, knowing she will turn them in the same flight south.

ESKIMO CURLEW

(*Numenius borealis*)

Adult male and female — Top of head, dusky, streaked with buff, and without central light stripe; rest of head, neck, and lower parts, light buff; cheeks and neck, streaked, the breast, sides, flanks with V-shaped markings of brown; axillars and lining of wing, pale cinnamon, the axillars barred with dusky; upper parts, spotted dusky and buff; the wing-coverts, grayish brown, with dusky streaks; rump and upper tail-coverts, dusky and light buff; tail, gray, with brownish bars; bill, black; iris, brown; legs and feet, greenish brown. Other plumages similar.

Measurements — Length, 13.50 inches; wing, 8 inches; culmen, 3 inches; tarsus, 2 inches.

Eggs — Four in number; ground color, olive-drab, with irregular blotches of dark sepia; measure 2.10 by 1.80 inches.

Habitat — Breeds on the Barren Grounds from the Anderson River east, probably in Cumberland and Greenland, and possibly in Alaska. Winters from Louisiana (?) and the West Indies, throughout South America to Cape Horn, but chiefly on the plains of Argentina and Patagonia. Formerly an abundant migrant through the western Mississippi Valley, and tolerably common on the Atlantic Coast in fall; rare between the coast and the Mississippi, and not reported from farther west than Texas, except once from California; now migrating through the Mississippi Valley in greatly reduced numbers, and very rare on the Atlantic Coast. Has been reported in the migration from northeastern Siberia, St. Michael, and the Pribilof Islands, Alaska, the Galapagos and Falkland Islands, Bermuda, and Great Britain.

An uncertain bird, the Eskimo curlew is not common on the eastern coast of the United

States, and apparently for no good reason. About the Labrador shores this curlew until recently has been abundant, congregating in large flocks, sometimes of thousands, gathering on the hills along the coast, and feeding on grasshoppers and various berries, particularly a small black variety which grows on a low shrub and goes by the name of curlew berry. When looking for a place to feed, the flocks keep a short distance from the ground on graceful wing, now high over the grass, now with a swoop disappearing only to reappear and sail on. Presently the birds settle, and if approached, so exactly resemble the grass that they are difficult to see on the ground; and unless the spot is well marked, they may rise unexpectedly, when a clear, low whistle announces their departure. From the Labrador coast the Eskimo curlew pass out to sea, and we know little of their course. On the islands in the Gulf of St. Lawrence they occur in small numbers; rarely a storm-driven or belated flock is seen. South, along the coast, their presence is still more irregular, marked generally by a persistence of easterly winds and foggy weather. On the Magdalen Islands, except in a single instance, I have never seen these birds abundant. This occurred in early September, 1890; we had sailed to the eastern end of the islands for a few days' duck-shooting. One or two foggy days preceded our arrival, and heavy

weather prevented us from quite reaching the destination. The shelter of a native shanty was thankfully accepted. It proved to be an instance, though, of "into the fire," for the house was flea infested, and but little better than the storm outside. At the first sign of morning I left the place with the idea of climbing a high bluff just beyond. It was a straight cliff some two hundred feet high, rising from the edge of the bay, and tapering off into low hills from the summit. Long before reaching the top I could hear curlew whistling, and soon a flock passed by in sight; after circling about the steep slope they settled in the grass. In a few minutes a small bunch of birds came within range, and at the report of the gun a perfect cloud of curlew rose, breaking up into small flocks as they filled the air. To my surprise the birds were mostly Eskimo curlew. It was a question only of a short time before the last cartridge had been spent, and the shooting had been so rapid there had been no chance to pick up the dead birds; of these about two-thirds were Eskimos. Later in the morning we started out with powder and shot enough to last, but the curlew had gone, not a single one was left; and though repeatedly this hill was visited, we never afterward saw anything there but a few Hudsonian curlew. Toward the end of September the Eskimo curlew is regularly found as a straggler

among the flocks of Hudsonian, at the Magdalens, but I have never seen them in a flock by themselves, with this exception. Farther south they are uncommon, and off Massachusetts only occasionally come in with the flocks of golden plover, after heavy easterly weather, late in August or early September. The young birds are taken well into October under the same circumstances. On the southern coast their occurrence is similar, and the large bodies spend but little time on land between the shores of Labrador and the Pampas of the Argentine and Patagonia. In September and October they are found through the interior on the prairie, and in the spring the migration is apparently almost entirely through the western United States, along the same course as the golden plover. About the middle of May the birds literally covered the prairie in places, and were shipped to the markets in barrels. In the last few years the numbers have decreased remarkably, both on the breeding-grounds and along the lines of their spring flight. The Barren Grounds of the eastern Arctic regions and northern Labrador are the nesting-places, and these are reached in early June. The eggs are placed in a slight depression on a few dead leaves or a little grass, and are very difficult to find on account of their resemblance to the surroundings, the bird quietly leaving at the approach of danger. The

young are hatched late in the month and run at once, quickly hiding in the grass if threatened.

The Eskimo curlew show the same concern for their wounded noticed in other members of the family, and the flock often exposes itself to turn and circle over the fallen. Few birds are held in higher esteem for the market along our eastern coast, and the doe-bird, for this is one of its common names, is a delicacy on the bill of fare. It is also known as "futes."

WHIMBREL

(*Numenius phæopus*)

Adult male and female — Top of head, sooty brown, with a longitudinal medial stripe of buff, a dark stripe on side of head from bill to loral region, and a distinct superciliary stripe of buff above; remainder of head, neck, and lower parts, light buff, lightest on throat and anal regions; cheeks, neck entire, jugulum, and breast, streaked with brown; entire rump, white; upper tail-coverts, white, barred with brown; tail, dark gray, barred with dusky, and tipped with white; iris, brown; bill, black, base, yellowish brown; legs and feet, plumbeous. Other plumages, closely similar.

Measurements — Length, 17 inches; wing, 10 inches; culmen, 3.50 inches; tarsus, 2.50 inches.

Eggs — Four in number; olive-brown, blotched with dark brown; measure 2.34 by 1.67 inches.

Habitat — Breeds in Iceland, the Faroe, Orkney, and Shetland islands, and probably in Greenland; in Scandinavia and Russia, east to the Petchora River and Ural Mountains, above the forest limits, and north to 66°. Winters from the Azores and Canary Islands, through central Africa to Cape Town, and east to India, and occasionally the Malay Peninsula. Has occurred in Spitzbergen and several times in Greenland.

The whimbrel is the European representative of the Hudsonian curlew, which it closely resembles. It may be immediately distinguished by the pure white rump. Several specimens from Greenland constitute its claim to a place on the North American list.

The whimbrel is an abundant summer resident of the Faroe Islands and Iceland, breeding in marshes of the most desolate country it can find. Like so many other of the large waders, naturally pugnacious in the breeding season, swooping with a trilling cry at any strange or moving object, the few still raising their young in regions that man frequents have learned his disposition, and fly or run silently from their eggs while he is yet far away, and keep well out of gunshot.

BRISTLE-THIGHED CURLEW

(*Numenius tahitiensis*)

Adult male and female — Crown, sooty brown, with central longitudinal stripe of buff, a dark streak from bill through eye over the auricular region, a superciliary stripe of buff above, rest of head and neck, buff, streaked with brown; back and scapulars, brown, with spots of buff; wing-coverts, paler; upper tail-coverts and tail, buff, barred with dark brown; throat and under parts, buff; neck and breast, streaked, the flanks barred with dark brown; the shafts of feathers of tibial and femoral regions, lengthened like bristles; bill, black; base of mandible, flesh color; feet and legs, bluish; iris, brown.

Measurements — Length, 17 inches; wing, 10.50 inches; tarsus, 2.30 inches; culmen, 3.50 inches.

Habitat — Breeding range unknown; recorded from the Kowak River, St. Michael, and Kadiak, Alaska, in summer; from Lower

California; and in winter from the islands of the South Pacific, from the Hawaiian Islands to New Caledonia, and from the Ladrones to the Marquesas and Paumota groups. Has been taken on the Phœnix Islands, in Oceanica, on June 29 and July 2, and found common on Laysan in summer.

There are only two instances of this curlew having been taken on our western coast, both in Alaska, — one at St. Michael, the other on Kadiak Island. The one shot at St. Michael was killed by Nelson. It was one of a pair, and both birds were shot but the other lost. This species can only be regarded as accidental.

The appearance and habits of this bird much resemble those of the Hudsonian curlew, as does its loud whistling call-note.

CHAPTER XI

SHORE-BIRD SHOOTING (*CONTINUED*)

THE PLOVERS

(*Charadriidæ*)

The plover family contains almost as many species as the sandpiper-snipe group, and like it the members are found in all parts of the world. Many of them are very beautiful birds, and, among the species not occurring in North America, adornments such as a crested head or a spur on the wing are occasionally present. They are swift-flying birds with very long wings which reach when folded to the end of the tail. They are gregarious in their habits except in the breeding season, and the journey of the entire length of North and South America, from their summer to their winter homes, is no more of a task to some of the plovers than it is to certain sandpipers. Other species are practically sedentary, but none of these occur in North America. Fourteen species with two subspecies have been recorded within our limits, but several are present only as stragglers. They frequent the shores and marshes, but by no means exclusively, some preferring the

upland fields. Their food consists largely of insects and occasionally berries, but none of them bore in the mud for their food like a snipe. Swift either on foot or on the wing, they delight our eyes with their graceful movements, as they do our ears with their mellow call-notes.

None of the plovers are very large, and the neck is shorter than in the families already considered. The bill is peculiar,—shorter than the head, and in shape somewhat like that of a pigeon. Near the rounded nostrils the bill is compressed and then expands, curving over in a hard tip. The legs are covered with small hexagonal scales; the anterior toes have a small web at the base, and the hind toe is usually wanting. Although five genera occur in North America, our common species belong to two groups: one of these contains birds of medium size with mottled upper parts and with the lower parts black in the adults in summer; the other, small birds with plain upper parts, white lower parts, and usually a dark ring on the neck.

LAPWING

(*Vanellus vanellus*)

Adult male in breeding plumage—Forehead, top of the head, chin, throat, and breast, glossy lustrous black; feathers of occiput lengthened into a crest of the same color, curving upward; sides of head and neck, white, marked with black streaks behind the eyes; back, scapulars, and tertials, metallic green, changing to coppery purple on the outer scapulars; rump, like

BLACK-BELLIED PLOVER

the back, but less brilliant; upper tail-coverts, deep rufous; basal half and top of the tail, white; subterminal portion, black, this color disappearing on the outer feathers; lower parts, pure white, becoming rufous under the tail.

Adult female — Resembles male, but the throat is white, crest shorter, and upper parts less brilliant in color.

Winter plumage — Is similar, but the throat is white, the black band on the breast tipped on some feathers with white; some feathers on the back tipped with buff.

Young — Similar to adult in winter, but feathers of upper parts edged with sandy buff; little purple gloss on scapulars; crest very short; sides of head and throat marked with sandy buff.

Downy young — Above, light brownish gray, mottled with black; shoulders marked with rusty; hind neck and entire lower parts, white; chest, grayish.

Measurements — Length, 13 inches; culmen, 1 inch; wing, 9 inches; tarsus, 2 inches.

Eggs — Four in number; dark olive, blotched with brown; measure 1.93 by 1.34 inches.

Habitat — Breeds from Great Britain and central Europe, through Asia to northern China and Japan, and north to the Arctic circle in Europe, and latitude 55° north in Siberia. Winters from Great Britain, central Europe, the Azores, and northern Africa, east to northwest India and southern China. Has been recorded from Greenland, Nova Scotia, Long Island, New York, Barbadoes, and Norton Sound, Alaska.

This is the species that lays the "plovers' eggs" so well known to European epicures. It breeds in great numbers in western Europe, usually in marshes but often on the uplands, and its eggs are sold in market in thousands and tens of thousands, and until recently large numbers of the birds themselves were taken for sale in the breeding season. In spite of this persecution its numbers are still great, and one visiting suit-

able localities in April or May will be saluted by the frantic dash and wailing *peetweet* of the male, and perhaps see the female steal silently away in another direction. When mating the male goes through the peculiar actions known as "tumbling" to win the attention of his loved one. The nest is a slight hollow in the ground. The flight is peculiar, as if the bird were jerked through the air. When walking, the long crest is usually held horizontal but sometimes carried erect. In Hungary, the lapwing breeds in grassy pastures bordering lakes, keeping up a continual noise while one is in the neighborhood. In the winter they feed in the fields in Egypt, and allow one to approach closely without showing signs of fear.

The lapwing is also known as the green plover, peaseweep, peewit, and tuckit from its note, and the storm that often occurs about the time the birds return from their winter quarters is known in parts of England as the tuckit storm. It is included in the American Check-List on account of its occasional occurrence in Greenland. It has also been taken on Long Island.

DOTTEREL

(*Eudromias morinellus*)

Male in breeding plumage — Upper parts, ashy brown, feathers streaked and edged with sandy buff; rump and upper tail-coverts, ashy brown, edged with lighter; primaries and second-

aries, dusky brown, the first primary with outer web and shaft white; secondaries, edged with whitish, the innermost with sandy buff; top of head, blackish brown, feathers somewhat edged with sandy buff; broad white band over eye extending to nape; rest of head and sides of throat, white, spotted and streaked with dusky; throat, white, streaked with dusky below; sides of neck and band across fore neck, light ashy brown, washed with buff and bordered below by narrow band of black and this by a white band; breast and sides, orange-chestnut; centre of lower breast and abdomen, black; lower abdomen, thighs, and under tail-coverts, white; axillaries and under wing-coverts, smoky gray.

Adult female in breeding plumage — Similar, but less brightly colored, and black abdominal space less conspicuous.

Male and female in winter — Similar above, but top of head, brown, streaked with sandy buff; sides of face, ashy fulvous, streaked with brown; chin, white; throat, ashy brown, streaked with dusky, and a white band faintly indicated; rest of lower parts, isabelline white, sides washed with buff.

Young — Like winter plumage, but upper parts blackish brown, feathers edged with whitish; space above eye, throat, and lower parts, washed with ochraceous.

Downy young — Upper parts, black, mottled with rufous and sandy buff; black lines on forehead and lores; forehead, eyebrow, back of head, and lower parts, white.

Measurements — Length, 8.50 inches; wing, 5.75 inches; tail, 2.50 inches; culmen, .75 inch; tarsus, 1.35 inches.

Eggs — Two to three; grayish buff, spotted with brown and gray; measure 1.60 by 1.15 inches.

Habitat — Breeds in the Alps and the mountains of Great Britain and southern Russia to Scandinavia, and through Siberia, except the southeastern part, to Spitzbergen and Nova Zembla. Winters in southern Europe and northern Africa. Accidental in Japan, and one taken on King Island, Alaska, July 23, 1897.

Though chiefly confined in the breeding season to the northern parts of northern Eurasia, a few still breed on the mountains of the Eng-

lish lakes. Here they frequent the upper slopes of the highest mountains, laying their eggs in a small hollow which they form in the moss that covers the ground. As one approaches the breeding-grounds, he will usually see one of the birds fly by, uttering a low, plaintive whistle, and presently notice the other running along the ground, its plumage harmonizing so with the moss as to be practically invisible when not in motion. When flushed from the eggs, the parent will usually run a few steps and then stand silent and motionless; but sometimes it will shuffle along the ground, its tail spread wide, and squeal like a rabbit.

BLACK-BELLIED PLOVER

(*Squatarola squatarola*)

Adult male and female in breeding plumage — Around the base of the bill, sides of the face, throat, neck, in front, and breast, reaching well on to the under parts, jet-black; forehead, nape, back of neck widening on the sides to breast, white; some black feathers in the centre of the crown; back and scapulars, black, spotted and barred with white; wing-coverts, ashy brown, similarly marked; greater coverts, ashy brown, edged with white; under wing-coverts, white; axillary plumes, black; rump, brown, edged with white; upper tail-coverts, white, irregularly barred with brownish black; tail, white, barred with brownish black; vent and under tail-coverts, white; bill, black; legs and feet, plumbeous; hind toe present.

Adult plumage in fall and winter — Upper parts, dark brown, with irregular white markings, most numerous on the wing-coverts; under parts, white, marked occasionally with dark feathers.

Young plumage — Upper parts, lighter and marked with yellow, with white spots more or less rounded; narrow lines on neck and breast, more numerous; under parts, pure white.

Downy young — Upper parts, olive-yellow, spotted with black; hind neck and lower parts, white; black lines on side of crown, from bill to eye, and below eye.

Measurements — Length, 11 inches; wing, 7.50 inches; culmen, 1.25 inches; tarsus, 2 inches.

Eggs — Four in number; pyriform in shape; ground color, light drab, spotted with brown; measure 2 by 1.40 inches.

Habitat — Breeds in Russian Lapland and northern Siberia, the Yukon Delta (?), Franklin Bay, Melville Peninsula, and probably northern Greenland. Winters from Portugal and the coasts of the Mediterranean to South Africa; from India and southern China to Australia; and from the Bahamas, West Indies, North Carolina, Louisiana, and California, south to Brazil, Paraguay, and Peru. Occurs throughout the United States in migration, but most common on the coast. Occurs also in Bermuda, Hawaii, and many other ocean islands.

The clear, plaintive note of the blackbreast is the most musical sound of the shore and tells of a wild bird. Early August sees the first small flocks, and from Cape Cod to North Carolina they are found where the falling tide leaves exposed extensive sand-flats and where marshes and wild ocean beaches afford a resting-place at high water. Its whistle, often heard before the flock is seen, warns the gunner to lie low, and soon the line of dark birds comes in view, flying close to the water with grace and speed, heading straight for the decoys. One or two on set wings circle within range, but quick to notice the slightest motion are up and off while you hesi-

tate a second for a closer shot. Make the most of every chance, for with low water they shy the points, and follow the receding tide until the furthermost bars are exposed, feeding with the throng of shore-birds at the edge of the flats. If this company is disturbed, the blackbreast are the first to take alarm and leave. A little shooting quickly teaches them danger, and few birds become more wary: flying high between stopping-places, they keep to the open and avoid everything in the nature of a blind. Monomoy Island, on Cape Cod, was formerly a favorite resort for these birds. Here at high tide the flocks congregated on the high ocean beach in hundreds, leaving for the sand-bars first left bare, about two hours after the ebb, timing their arrival accurately with the tide. The constant gunning of the past few years has greatly decreased their numbers in this location and on Long Island. On the shores of Prince Edward's Island and the adjacent islands in the gulf, they still occur in some abundance, following down the coast from the breeding-grounds; and good shooting is had in the first two weeks of August. Here, two summers ago, I enjoyed my last day's blackbreast-shooting. The tide served early, and we sailed across the bay some three miles to an offshore island. Several seal floundered into the water from its farther point. The bars here were cov-

ered with the tracks of plover, and soon the familiar note was heard. There was barely time to make our blinds of seaweed and set the stool when the first birds appeared. Blackbreast in pairs and small flocks, occasionally a curlew and yellowlegs, followed the same course along the edge of the beach, coming within range of the blind if permitted, — and generally they were. For a short time the shooting was fast, and then the inevitable tide turned the flight out of reach. We killed between us some three dozen birds. The young blackbreast arrive in these same localities early in September and are easily shot, coming readily to decoys and answering if whistled to. The white breast gives them exactly the opposite appearance of the old bird, and with many of our gunners they go by the name of "pale-belly." As late as October we find them along the coast, sometimes in large flocks. The migration south is continued through the West Indies into Brazil, and there are few places en route where the birds are not hunted. On the Californian coast the black-breasted plover is abundant, and at times appears in large numbers in the interior, through Manitoba and the Mississippi Valley. Occasionally these birds are seen in the fields, where they feed on grasshoppers and berries, the flesh under these circumstances attaining its highest excellence. In the spring the

journey north is taken along the shores, and we hear the blackbreast in early May in the same places he left a few months since, now attired in breeding dress. The jet-black of the breast and the bright mottling of the back afford a plumage well suited to one of our gamiest shore-birds. The Arctic countries, from the Anderson River region across the continent to the Melville Peninsula, Alaska, and northern Siberia, are the nesting-places. The nest is placed in the grass or moss on the ground, and the eggs are laid in June.

Like so many other shore-birds, the male blackbreast guards the female while she is incubating, performing no part of the latter duty himself. If danger threatens he warns her, but keeps well out of gunshot himself, even though he lose all his family. With other enemies than man he is more brave, boldly attacking gulls that may come near his nest. By late July the young are fledged and the old birds leave them. The wide distribution and general popularity of this species have given it a number of names: in New England and Long Island, beetle-head, beetle, bullhead; on Cape Cod, maycock; off Virginia and North Carolina, plot.

This species is common throughout northern Europe, and is well known in Great Britain, France, and the northern coasts.

EUROPEAN GOLDEN PLOVER

(*Charadrius apricarius*)

Adult male and female in breeding plumage — Top of head, entire upper parts, black, spotted with bright yellow and white; wing-coverts, brown, more sparingly spotted with yellow and white; primaries, brown, with white shafts; upper tail-coverts, black, irregularly barred with gold; tail, dark grayish brown, barred with white, tinged with yellow; a white line from forehead, passing over the eyes, broadens into a wide patch on the side of breast; sides of head, neck, throat, and under parts, black; under tail-coverts, white; axillary plumes, white; iris, brown; bill, black; legs and feet, plumbeous; hind toe absent.

Adult in fall and winter — Upper parts resemble the breeding plumage, but not as bright; under parts, white; lower part of neck and breast, mottled with grayish brown feathers.

Young — Upper parts, dusky, mottled with dull ashy white spots, becoming yellow on the rump; under parts, ashy, most marked on neck and breast, becoming white below.

Downy young — Above, golden-yellow mottled with black; lower parts, spot below eye, another on hind neck, and streak on side of back, ashy whitish; down of breast, blackish at base.

Measurements — Length, 10 inches; culmen, 1 inch; wing, 7 inches; tarsus, 1.50 inches.

Eggs — Four; pyriform; creamy white, heavily spotted with brown; measure 2 by 1.40 inches.

Habitat — Breeds from Iceland, Great Britain, and central Europe to northern Norway and western Siberia. Winters from Great Britain and central Europe to the Canary Islands, South Africa, and India. Several have been recorded from Greenland, where they may breed.

The European golden plover closely resembles the American bird in plumage, and their habits are the same. Its occurrence in Greenland, where it is said to breed, has admitted it as an American bird.

Whether breeding on the inland moors of the Hebrides or the heather-covered hills of Shetland, these birds have their housekeeping affairs well arranged. The female cares for the duties of incubation, while the male, on guard a short distance away, gives a soft whistle to warn her of approaching danger; then both leave the vicinity of the nest, usually long before the sharpest eye can discern where their treasures lie. Fresh eggs may be found from the end of April to the beginning of July, many birds remaining in flocks until well into the breeding season. The eggs are laid on a few pieces of grass and heather in the moss, but sometimes a more ambitious architect will fashion from these materials a well-formed and commodious nest.

AMERICAN GOLDEN PLOVER[1]

(*Charadrius dominicus*)

The various plumages of the American golden plover closely resemble the species just described. The only difference in the breeding plumage is found in the under wing-coverts and axillary plumes, which are gray instead of white. The golden spots of the upper parts are usually less marked. In the winter plumage and the young the species are not distinguishable except by the color of the axillaries.

Measurements — Length, 10.50 inches; wing, 7.09 inches; culmen, .92 inch; tarsus, 1.70 inches; middle toe, .90 inch.

Eggs — Four in number; ground color, various shades of drab, blotched with dark brown and black, the markings most

[1] This species is fully described in the "Upland Game-Bird" volume of the library.

abundant around the larger end; they measure 1.90 by 1.30 inches.

Habitat — Breeds from northwestern Alaska, possibly northern British Columbia and the Barren Grounds, to the Parry Islands and probably Greenland. Winters from West Indies and Louisiana to Argentina, Chili, and Patagonia. In the United States it is now rare, formerly abundant on the Atlantic Coast north of North Carolina in fall, always rare farther south, and along the entire coast in spring; common, formerly abundant, in the Mississippi Valley, and rare on the Pacific Coast in both migrations, but has been recorded as far west as the Queen Charlotte Islands. Recorded twice from Europe. Formerly abundant in Bermuda in fall.

PACIFIC GOLDEN PLOVER

(*Charadrius dominicus fulvus*)

The plumage is identical with the American golden plover, but the golden spots on the upper parts are more marked. The bird is slightly smaller.

Measurements — Length, 10.25 inches; wing, 6.40 inches; culmen, .92 inch; tarsus, 1.70 inches; middle toe, .90 inch.

Eggs — Not distinguishable from *C. dominicus*.

Habitat — Breeds in northern Siberia, from the Yenisei River east to Bering Straits and on the Alaskan coast of Bering Sea, occurring also on the Aleutian and Pribilof islands in migration. Winters from the Hawaiian Islands and China south to Oceanica, New Zealand, Australia, and west to India, and has been reported several times from Europe and once from Algeria. Occurs in flocks in Hawaii throughout the year.

This is an Asiatic form of the American bird, differing from it in its smaller size and more golden markings. It occurs on the islands of Bering Sea and on the Alaskan Coast, from St. Michael to Kotzebue Sound. The habits of the two varieties are identical.

KILLDEER PLOVER

(*Ægialitis vocifera*)

Adult male and female in breeding and winter plumage — Top of head and upper parts, grayish brown, inclining to umber; rump and upper tail-coverts, rufous; forehead and broad superciliary stripe, throat, nuchal collar, and lower parts, white; front of the crown, loral stripe extending toward the occiput, collar around the neck, and band across breast, black; primaries, dusky, the inner quills marked on their outer webs with white; tail, pale rufous brown variegated with white, long, marked with a subterminal black bar with white tips, the middle pair of feathers tipped with buff; under parts, white; bill, black; iris, brown; eyelids, red; legs and feet, grayish.

Young — Resembles the adult, but the feathers of the upper part more or less marked with rusty.

Downy young — Upper parts, grayish brown, finely speckled with black; forehead, flanks, and lower tail-coverts, pale brownish buff; lines on lores, surrounding crown, in centre of back, across wings, on sides, and around neck, broadening on chest, black; line around neck, last joint of wing, and rest of lower parts, white.

Measurements — Length, 10 inches; wing, 6.50 inches; tail, 3.50 inches; tarsus, 1.50 inches; culmen, .75 inch.

Eggs — Four in number; pyriform in shape; ground color, pale buff, profusely blotched with brown, most marked on the larger end; measure 1.65 by 1.13 inches.

Habitat — Breeds in Lower California, Mexico, and Jamaica, perhaps the Bahamas, and throughout the United States, except possibly southern Florida, north to Newfoundland, Quebec, Ontario, Hudson Bay, Saskatchewan, and British Columbia; rare in the northeastern portion of its range. Winters from New Jersey, sometimes Massachusetts, Indiana, Michigan, Illinois, Missouri, Texas, Utah, California, and the coast of British Columbia, south to Paraguay and Chili, and in Bermuda. Has been taken in Great Britain.

While not uncommon on the coast, we associate the killdeer with the West, a graceful orna-

ment of the prairie, following the plains to the Pacific Coast, and passing south into tropical America. The northern limit of its common range is the Saskatchewan. With early spring the bird arrives in most of its resorts, sometimes not waiting for the snow to leave. It frequents the cattle pastures and ploughed ground, gathering about the smaller pools, keeping, for the most part, on the ground; few birds are more at ease on their feet, running with speed, if necessary taking wing lightly with quick flight, uttering its plaintive *killdee* as it flies from possible harm. The bird is not particularly good eating, and hence in many places is undisturbed. In Dakota I have seen them close to the farms, feeding within a few feet of the houses, often among the chickens. In spite of the bright, attractive coloring of its plumage, the killdeer is occasionally difficult to see, and frequently I have heard the note a short distance off without noticing the bird until it flew. On the barren mesas of Mexico, wherever there is water, the killdeer are very common, breeding abundantly. One nest I found lay in the very centre of a narrow trail which was used daily by herds of cattle on their way to water. The birds, after using every art to distract the attention, alighted on the ground a few feet away, and in piteous notes pleaded for their possession. It was left unmolested. The breed-

ing-ground is general throughout the range. The young run and hide on leaving the shell, and few little chicks have more devoted parents. Along the coast the killdeer comes to the marshes and rarely is seen on the flats, generally preferring the fields where the grass is short and grasshoppers and various insects abound. Here it also feeds on little worms and grubs. In localities where the life of every bird is in danger, the cry *killdee* has often served a timely warning, and this restless, watchful plover has started many a flock of unsuspecting birds. It winters regularly in the Southern states, and some few brave the cold weather of the North. The Bermudas and West Indies see them at this time, and many pass into Central America.

Toward the end of November, 1888, large numbers of this species appeared on the Atlantic Coast from Nova Scotia to Long Island, New York, having been carried north by a storm. None of these birds were found far in the interior, and most of them disappeared in a few days, although a few lingered until March on the New England coast.

SEMIPALMATED PLOVER

(*Ægialitis semipalmata*)

Adult male in spring and fall plumage— Front, throat, ring around the neck, and under parts, white; a black band crosses the breast, extending around the back of the neck, below the white

ring; a band from the base of the bill, beneath the eye, and a wide band in front, above the white band, black; upper parts, grayish brown; quills, dark with shafts white; greater coverts, tipped with white; middle tail feathers, brown with a wide subterminal dark band and narrowly tipped with white; two outer tail feathers, white; others, intermediate, broadly tipped with white; bill, black with orange base; legs and feet, grayish; a web between the outer toes and the middle ones, reaching to the second joint; iris, brown.

Female — Similar in plumage, but somewhat lighter. In the young, the black is replaced by grayish brown, and the upper parts are lighter.

Downy young — Upper parts, pale grayish brown, finely mottled with black; forehead, cream color; broad band around neck, last joint of wing, and lower parts, white; line from bill encircling crown, and spot before eye and on side of chest, black; forehead, cream color.

Measurements — Length, 7 inches; wing, 4.75 inches; culmen, .50 inch; tarsus, 1 inch.

Eggs — Four in number; ground color, drab, with blotches of black; measure 1.20 by .95 inches.

Habitat — Breeds from Sable Island, the Gulf of St. Lawrence (possibly Grand Manan), Ontario, northern Manitoba, and Assiniboia, north to Greenland, Cumberland, Fort Anderson, and the interior of Alaska; most abundant near the Atlantic Coast. Winters from the West Indies, Florida, Louisiana, and Lower California, south to Patagonia, Chili, and the Galapagos, some reaching South America by July 7. In migrations most abundant on the Atlantic Coast, but not rare in the interior or on the Pacific Coast south of the Aleutian Islands. Occurs also in northeastern Siberia, Greenland, and Bermuda.

A social, friendly little plover, well known along our coast, where its sudden sharp note has made many a gunner start in the expectation of something bigger, only to see a ring-neck dart over his decoys. This species associates com-

monly with the small fry, and can generally be seen among flocks of peep, feeding at the water's edge on the flats and beaches, gentle and unsuspecting, paying little attention to the outside world. Running rapidly, perhaps stopping to take in the situation, when, if occasion require, it takes graceful wing and speeds to some safe spot. The ring-neck looks much like a miniature killdeer, and on dark sand is often difficult to notice, provided the bird remains motionless. While partial to the shore, this species is found inland on nearly any small body of water, seeking its food of little water insects and bugs or tiny shellfish at the edge of the beach. If the flock is startled, all take flight at the instant, showing dark as the light strikes the back, and white when the breasts suddenly turn into sight. These birds pass far to the north, breeding within the Arctic circle, on the interior watercourses, and near the coast, from Greenland to Alaska. The nest is on the ground, where a little hollow is scooped out for the eggs, and these are placed on dead leaves, the parents guarding well their treasure, and when the chicks are hatched, showing every devotion to them. Late in July we see them throughout our boundaries, and by early August some have reached the coast of Florida. They keep on the southern journey through the West Indies to South America, scattering through

the interior and occurring on both the Atlantic and Pacific shores. This species is also known as the ring-neck plover.

EUROPEAN RING PLOVER

(*Ægialitis hiaticula*)

Adult male and female — Similar to the ring-neck plover, *Æ. semipalmata*, but larger. The plumage differs in that the European variety has a white spot behind the eye, and the dark band across the chest is broader. The semipalmation reaches only to the first joint.

Downy young — Similar to *Æ. semipalmata*, but forehead, white.

Measurements — Length, 7 inches; wing, 4.75 inches; culmen, .50 inch; tarsus, 1 inch.

Eggs — Similar in color and shape to the American variety, and measure 1.40 by 1.05 inches.

Habitat — Breeds from western and central Europe and Turkestan, north to Taimur Peninsula, Siberia, Nova Zembla, Spitzbergen, Iceland, Greenland, Cumberland, and possibly Sabine Island. Winters on the shores of the Mediterranean and throughout Africa. Has been recorded from Barbadoes, Chili, India, and Australia, and is said to breed on the Red Sea.

Included in the North American fauna on account of its breeding on the American side of Davis Bay.

In the breeding season this species keeps close to the beaches, as it does most of the year, using for a nest a slight hollow in the sand lined with small pebbles or pieces of shell, or, where the cliffs skirt the shore, bare, gravelly places on the hillside. A remarkable instance of the persistent brooding of the ringed plover is recorded in Poynting's

"Eggs of British Birds." A bird was found sitting on a nest containing only four beer-bottle corks on May 26, and though the nest was frequently visited and the corks thrown out, they were found invariably again in the nest and the bird on them up to July 26.

LITTLE RING PLOVER

(*Ægialitis dubia*)

Adult male and female — Similar in plumage to the semipalmated plover, *Æ. semipalmata*, but the white on the primaries is confined to the shaft, and a white bar borders posteriorly the black band on crown; bill, entirely black; legs and feet, dull yellow.

Measurements — Length, 6 inches; wing, 4.50 inches; tail, 2.50 inches; culmen, .50 inch; tarsus, 1 inch.

Eggs — Four; pale buff, finely spotted with dark brown and gray; measure 1.20 by .90 inches.

Habitat — Breeds from southern Europe, central Asia, and Japan north to latitude 60° in Siberia and Europe, excepting Great Britain and Ireland. Winters in northern and central Africa, India, and south to the Malay Archipelago. Has been recorded from Great Britain, Alaska, and California.

A European species straggling to the coast of Alaska and California, and hence listed among the North American birds.

In its breeding habits and eggs, this bird closely resembles our piping plover, and, like that species, is seldom found on its eggs during the day. For its summer home it prefers the sandy shores of large rivers and lakes to those of the ocean. In the mating season the male soars in the air

like a skylark, uttering its love-song as it rises higher and higher, and then slowly returns to the ground.

PIPING PLOVER

(*Ægialitis meloda*)

Adult male — Between the eyes, over the forehead, is a band of black and another about the back of the neck and sides of the breast; forehead, neck, above the broken, black band, and entire under parts, white; top of head, ear-coverts, back, and wings, ashy gray tinged with brown; rump and upper tail-coverts, white; primaries, dark brown; shafts and inner webs, white; tail, white at base marked by a subterminal black band on all but the two outer feathers, which are white; bill, yellowish orange with a black tip; legs and feet, yellowish orange; iris, brown.

Female — Similar to the male in plumage, but the black bars have a brownish hue and are more indistinct.

Young — Without the black band; collar around the back of the neck, ashy brown.

Measurements — Length, 7 inches; wing, 4.50 inches; tail, 2 inches; culmen, .50 inch; tarsus, .90 inch; middle toe, .75 inch.

Eggs — Four in number; ground color, light cream, over which are fine markings of black; measure 1.20 by 1 inches.

Habitat — Breeds from the coast of Florida, locally, north to the Magdalen Islands and, probably, southern Labrador, Lake Erie, Lake Michigan, and in Cuba and the Bahamas. Winters in the Bahamas, West Indies, Florida, and Texas, and accidentally in Massachusetts. Recorded from Bermuda, Greenland, Hudson Bay, and Alaska. In migration east to the Bermudas and west to North Dakota and probably Manitoba.

Common throughout the eastern United States, and breeding through the maritime provinces of Canada to Florida, this bird frequents the sandy stretches of ocean beach, nesting among the drift on the sand. The eggs so resemble in color their

surroundings, it is almost impossible to distinguish them. At the approach of danger the old bird slips from the nest, and running quietly off, rises at some distance, betraying its anxiety in plaintive cries and attempting to distract the attention of the intruder to itself. It is believed by some to cover its eggs only at night and in stormy weather, relying on the sun to assist in incubation. The young are hatched in July, and the little chicks keep high up on the beach at first, but when they are fledged follow the parents to the water's edge, where they feed on insects abounding in the soft sand, left wet by receding surf. In August, gathering in small flocks, they occasionally straggle to the flats inside and associate with the ring-neck and peep. The young birds resemble the adults closely in plumage, but are without the black markings on the neck and head. They begin the migration south about three weeks after the old birds, appearing in limited numbers on the New England and Long Island coasts early in September. From their abundance farther north and the scarcity here, it would seem that many keep on their migration until more southern climes are reached.

This species also occurs in the interior in the vicinity of the Great Lakes, following the Mississippi Valley south. In the extreme of its western range, it comes into contact with the western

variety, the belted piping plover. After the early fall we do not see them again until May.

BELTED PIPING PLOVER

(*Ægialitis meloda circumcincta*)

Adult male and female — Resembles the plumage of the piping plover, *Æ. meloda*, but has a continuous black ring about the neck, which in the piping plover is interrupted. There is no difference in size between the two varieties.

Downy young — Upper parts, pale cream-buff, speckled with blackish; forehead, sides of head, band around neck, last joint of wing, and lower parts, white; line around nape, on wings, sides of rump, and tail, black.

Eggs — Similar to those of the piping plover.

Habitat — Breeds on Sable Island, the Magdalen Islands, Ontario, Indiana, and Illinois, to Lake Winnipeg, possibly Hudson Bay, Assiniboia, North Dakota, Wyoming, and Nebraska. Winters in Texas, Louisiana, and probably the West Indies. Migrates chiefly through the Mississippi Valley, but occurs on the Atlantic Coast from Maine to South Carolina. Typical specimens do not breed east of Lake Erie, but intermediates nest on the Atlantic Coast from North Carolina to the Magdalen Islands.

The western variety of the common piping plover. This bird is common in Manitoba and our Western states, along the Mississippi Valley, into Texas. It occasionally straggles to the Atlantic coast. The habits are precisely similar to those of its eastern relative.

SNOWY PLOVER

(*Ægialitis nivosa*)

Adult male — Forehead, superciliary region, indistinct collar on back of neck, and lower parts entire, pure white; a band across the fore part of crown, auriculars, and patch on each side of the

breast, black; upper parts, gray; crown and occiput, occasionally tinged with buff; primaries, dusky with white shafts; the two outer tail feathers, white, the rest gradually growing darker to the inner pair, which are dusky.

Adult female — Similar to the male, but without the distinct black markings; sometimes these are wanting; bill and eyelids, in both, black; iris, brown; legs, slate color; inside of mouth, fleshy white.

Young — Without the black markings, which are replaced by ashy; upper parts, lighter.

Downy young — Upper parts, pale grayish buff, mottled with black; a dusky streak behind eye; forehead, band around neck, last joint of wing and lower parts, white.

Measurements — Length, 6.50 inches; wing, 4.25 inches; culmen, .60 inch; tarsus, 1 inch; middle toe, .50 inch

Eggs — Four in number; ground color, light drab, finely dotted with black about the larger end; measure 1.18 by .95 inches.

Habitat — Breeds from southern and central California and Utah, and possibly Wyoming, to western Nebraska (?), southern Kansas and Texas, and probably western Florida, and possibly in Central and South America. Winters from southern California and Louisiana, south on both coasts of Central America to Venezuela, Chili, and Paraguay. Recorded from Cuba and Ontario.

The snowy plover is found on the coast of southern California, inland as far as the Great Salt Lake. It is abundant on the ocean beaches, frequenting the high, dry sand, and has many of the habits of the piping plover. The bird is generally silent, and the soft coloring of its plumage blends perfectly with the surroundings. Along the California shore this plover remains through the winter, breeding in May. The nest is a mere depression in the sand, and several pair are often found in a comparatively small area. The eggs

resemble exactly the coloring of the beach and are very difficult to see. The old birds, after the manner of other birds of the family, feign wounded and try every means to get their enemy away. The young are hatched in early August and at once accompany their parents in search for sand-bugs, feeding on the little insects that abound on the beach, running quickly away from the pursuer, or settling motionless on the sand, where they easily escape observation. The snowy plover is found also on the interior bodies of water near the coast, and is very abundant in the Salt Lake region. In May, 1901, I shot a pair of these birds, feeding on the edge of a lake, near Chihuahua, Mexico, in company with a number of larger birds, teal and avocets; they were the only ones seen.

MONGOLIAN PLOVER

(*Ægialitis mongola*)

Adult male—Forehead, a broad band beneath the eye extending over the ear-coverts, black; a narrow frontal band of black from the culmen to the upper anterior margin of the eye; between this and the stripe below is a stripe of white; lower eyelid, white; stripe from behind the eye, buff, becoming rufous; crown and back of neck, brownish gray, mottled with rufous; a narrow collar of bright cinnamon about the neck, broadening on to the breast; upper parts and wings, grayish brown with a faint tinge of green; tips of greater wing-coverts, white, forming a bar; primaries, dark brown; upper tail-coverts, grayish in the centre, laterally white; tail, central feathers dark gray, grading to white on the outer feathers; each feather, except the

two central, tipped with white; entire under parts, white; bill, black; legs and feet, olive-gray; iris, brown.

Adult female — Similar, but rufous paler, and less sharply marked; and black markings on head less distinct.

Winter plumage — The cinnamon and bright brown are replaced by gray; the black markings of the head in the spring plumage are replaced by grayish brown.

Young — Similar to winter plumage, but a buffy suffusion to plumage, and feathers of upper parts bordered with buff.

Measurements — Length, 6.75 inches; wing, 5.50 inches; culmen, .75 inch; tarsus, 1.25 inches; middle toe, .75 inch; tail, 2.50 inches.

Habitat — Breeds in northeastern Siberia and the Commander Islands. Winters from the Philippine Islands to Australia, passing through China and Japan in migration. Two were taken on the Choris Peninsula, Alaska, in 1849.

Dr. Stejneger found this species breeding abundantly on Bering Island, where it arrives early in May. In its habits it much resembles some of our own small plover, running rapidly along the beach if pursued, and running also from its nest before it is possible to mark the exact location of the latter. A nest taken early in June contained three eggs, and was situated near the shore on a small island. Dry pieces of leaves, stems, and the seeds of a plant growing near formed the nest, which was placed in a slight hollow in the ground. One note of this bird is a clear, sharp whistle. The bird is common on the Commander Islands and has straggled to Alaska.

WILSON'S PLOVER

(*Ægialitis wilsonia*)

Adult male — Forehead and line over eye, white; crescentric patch on forehead, and a band across the jugulum, black; throat and under parts, pure white; back of head, back, wings, and rump, brownish gray, darkest on head; greater wing-coverts tipped with white forming a bar; iris, brown; bill, black; legs and feet, yellowish.

Female — Resembles the male, but the black markings are replaced by brownish; the breast is tinged with buff.

Young — Similar to adult female, but feathers of upper parts edged with paler.

Downy young — Upper parts, grayish buff, mottled with black; forehead, sides of head, band around neck, last joint of wing and lower parts, white; a black line behind eye.

Measurements — Length, 7.50 inches; wing, 4.50 inches; culmen, .75 inch; tarsus, 1.25 inches; middle toe, .75 inch.

Eggs — Two to four in number; ground color a deep drab with black markings, most marked about the larger end; measure 1.45 by 1 inches.

Habitat — Ranges on the coast of North and South America from Virginia, casually north to Nova Scotia, to Brazil, and from Lower California, casually north to San Diego County, California, south to Peru, and in the Bahamas and West Indies. Breeds probably throughout its range, and is a resident in the Bahamas and West Indies and from Louisiana and Texas south. Reported from Vermont.

The southern coast of the United States is the home of the Wilson's plover; here they are abundant and frequent the ocean beaches, going in winter to South America, and from Lower California to Peru. In May, near Cobb's Island, this plover was one of the commonest beach-birds, and though mated and breeding seemed to keep

in colonies. Here in many places the tide of the bay rises to the inner edge of the outer beach, and it was along this inside flat, close to the ocean, the birds were most numerous, feeding on the wet sand. I seldom saw them at the edge of the breaking waves. The nests were on the high beach, slight depressions in the ground, and the eggs so exactly like the surroundings it was almost impossible to see them. They allowed us to approach within a few feet, then ran off, — while danger threatened keeping up a plaintive note of distress. This species is readily distinguished from the other small plover by its large and rather long bill.

MOUNTAIN PLOVER

(*Ægialitis montana*)

Adult male and female in breeding plumage — Forehead and stripe over the eye, and entire lower parts, white; somewhat soiled beneath; fore part of crown and a line from bill to the eye, black; rest of crown and entire upper parts, grayish brown, the feathers tinged occasionally with reddish buff; tail, dusky; shafts of primaries, white; iris, brown; bill, black; feet, yellow.

Winter plumage — Similar, but the black markings on the head are absent and the plumage is more tinged with buff.

Young — Similar, but feathers of upper parts edged with buffy; side of head, neck, and chest, cream-buff.

Downy young — Upper parts, brownish buff, mottled with black; lower parts, pale buff.

Measurements — Length, 8.50 inches; wing, 6 inches; culmen, .85 inch; tarsus, 1.50 inches; middle toe, .75 inch.

Eggs — Three in number; ground color, dark drab marked with black spots about the larger end; measure 1.40 by 1.10 inches.

Habitat — Breeds from Arizona, eastern New Mexico, Indian Terri-

tory and western Kansas north to the Canadian boundary in central Montana, and probably west to Utah and south into Mexico. Winters from western Texas to central Mexico and from the interior of central California into Lower California. Accidental in Florida.

Fond of the plains, this species is common on the table-lands of the Rocky Mountains and in the southwestern deserts of the United States, breeding in these locations. The birds are gentle, and when approached run out of harm's way rather than fly. They may stand perfectly motionless, trusting in the resemblance of their plumage to the surroundings to protect them. The flight is low down, the plover sailing on curved wings, and running for a few steps after it has alighted. The nest is placed on the ground and contains three eggs. After the young are fledged, in July, this species collect in small flocks, keeping mostly to the prairie and barren plains, feeding on various insects, grasshoppers, and crickets, from which diet they become fat and excellent. With the frosts and cold weather the birds pass to the south, keeping pretty much to the high, dry mesa. In May, 1901, I saw a pair of mountain plover in one of these locations in northern Mexico, where they were evidently nesting. They ran ahead of the horses a few feet, then turned to one side and stood still as we passed. Rarely this species has been taken in Florida, and occasionally resorts to the plains close to the coast.

CHAPTER XII

SHORE-BIRD SHOOTING (*CONTINUED*)

THE TURNSTONES AND SURF BIRDS

(*Aphrizidæ*)

THIS is another small family of but four species, all of which occur in North America, and three are confined to the New World. They are all small birds, frequenting almost exclusively the ocean beaches or the rocks lining the coast, and have earned the name of turnstone by their habit of turning over pebbles in search of the insects beneath. All breed in the far North, wandering over most of the earth's surface in autumn and winter. The ruddy turnstone is the only species found in eastern North America, and in this the striking plumage of the male, his back of black and rufous, black breast, white abdomen, black bill, and red legs will arouse the admiration of any one in whom custom has not dulled the eye for beauty.

In many structural peculiarities these birds resemble the plovers, but they may be recognized by their rather pointed bills, their legs with transverse scales in front, the presence of a hind toe,

and the absence of a web between the anterior toes. Their whistle is clear and loud and given more often by a single bird than by a member of the large flocks in which the turnstones sometimes assemble.

SURF BIRD

(*Aphriza virgata*)

Adult male and female in summer plumage — Head, neck, and back, spotted and streaked with dusky and white, the white predominating on the head, neck, and breast, where the darker markings are in irregular streaks, but in the form of crescentric bars on the back and lower breast; scapulars marked with large, irregular spots of rufous; wing-coverts, grayish brown; tips of greater coverts, white, forming a bar across the wing; primaries, blackish brown with white shafts; rump, brown, indistinctly tipped with white; upper tail-coverts, white; tail, white on the base, the remaining half, black; abdomen, white; flanks and lower tail-coverts, white with black spots; bill, black with yellowish base; legs and feet, yellowish; iris, brown.

Winter plumage — Head, neck, and upper parts, slate color; rest, as in summer.

Young — Upper part, brownish gray, the feathers edged with whitish; throat, neck, and breast white, streaked with gray; rest of lower part and upper tail-coverts, white; wings and tail, as in adult.

Measurements — Length, 10 inches; wing, 7 inches; culmen, 1 inch; tarsus, 1.25 inches; middle toe, .90 inch.

Eggs — Unknown.

Habitat — Breeds probably in the interior of northwestern Alaska. Winters in South America, occurring in migration along the Pacific Coast of North and South America, from the Kowak River, Alaska, to Chili and the Straits of Magellan.

The surf bird ranges along the Pacific Coast of North and South America, but is apparently everywhere rare, and little is known of its habits.

The breeding-place has not been discovered. It has been taken in Alaska, at St. Michael, and near Sitka, also at the mouth of the Columbia River. Another name for this species is the plover-billed turnstone.

The natives of Kotzebue Sound and St. Michael, Alaska, say that this bird breeds near small lakes on the tundra, twenty to thirty miles back from the coast. It is a shy and solitary bird, with much the habits of the wandering tattler, inhabiting rocky shores and small islands off the coast.

TURNSTONE

(*Arenaria interpres*)

Adult male and female — Chin and throat, a large spot on lores, ear-coverts, back of neck and upper part of back on each side of breast, white; the crown marked with black streaks; rest of head, sides, and upper part of breast, black; back and scapulars, black, their centre marked with brown; lesser wing-coverts, brown; greater coverts, black, broadly edged with white forming a bar across the wing; primaries, brown tipped with white; rump, white; tail, white with subterminal black band, tipped with white; under parts, pure white; bill, black; feet and legs, vermilion; iris, brown.

The plumage differs greatly in brilliancy in different individuals, the variations being in the distinctness of the black markings and the presence of rufous brown on the back.

Winter plumage — Similar to the above, but the black feathers are edged with white and the back less marked with brown.

Young — Head, mottled gray; upper parts, dusky, the feathers bordered with buff; jugulum and breast, mottled dusky; under parts, pure white; iris, brown; legs and feet, reddish.

Downy young — Upper parts, blackish gray, slightly washed with yellowish, and some of the feathers tipped with black; line on

crown, another from bill to eye, and spot on nape, black; lower parts, white; sides of head, white.

Measurements — Length, 9 inches; wing, 6.25 inches; culmen, .90 inch; tarsus, 1 inch; middle toe, .75 inch.

Eggs — Vary greatly; four in number; ground color, a light drab deeply blotched with light brown; measure 1.60 by 1.18 inches.

Recently, particular attention has been given to the turnstone found in Alaska, and it proves to be a separate species from that inhabiting the rest of the continent of North America. Mr. William Palmer, after careful research on this subject (the Avifauna of the Pribilof Islands), demonstrates distinct differences and identifies the Alaskan bird as *A. interpres*, the eastern variety as *A. morinella*, the ruddy turnstone.

A. interpres — Larger, wing more than 6 inches; black above predominant; feet, vermilion.

A. morinella — Smaller, wing under 6 inches; chestnut above predominant; feet, orange-red.

Habitat. *A. interpres* — Breeds in Greenland and from Point Barrow, Alaska, to the Yukon Delta and on St. Lawrence Island in Bering Sea. Unrecorded from the mainland of North America on the Atlantic Coast, and on the western south of the Aleutians. In the eastern hemisphere breeds in Iceland, the Orkneys, islands in the Baltic, and the coasts of Scandinavia, northern Russia, Nova Zembla, and Siberia south to Japan, and the Kuril Islands, and has been recorded from Spitzbergen and Franz Josef Land. In winter spreads south along the entire coasts of Europe and Asia to South Africa, the Indian Ocean, Australia, New Zealand, Oceanica, and most of the islands in the Atlantic, Pacific, and Indian oceans. It is given as a resident, and has been thought to breed, on the Azores, Canary, and Balearic islands, islands in the Red Sea, near Madagascar, Portugal, and Hawaii.

A. morinella — Breeds on the shores of the Arctic Ocean from the Mackenzie River, east probably to Cumberland, and south possibly to Hudson Bay. Winters from the Bermudas, West Indies, Florida, possibly North Carolina, Louisiana, Texas, and Lower California, south to Patagonia, Chili, and the Falkland and Galapagos islands; has been recorded in Venezuela early

in July, and from Jamaica, Louisiana, and Texas throughout the year. In the migrations chiefly along the coast, especially the Atlantic, but occurs throughout the interior of the United States, except, possibly, the Great Basin.

The turnstone is cosmopolitan and well known in nearly all parts of the world. It is common on the coast of North America, and is found in the interior on the Great Lakes and larger bodies of water. It is seen in small flocks early in August on the flats, following the tide out with the sandpipers and plover, or in the marshes, often on the gravelly beaches and where the shore is rough and rocky. Here they follow the water's edge, looking for their food of insects and little worms along the lines of seaweed cast up by the tide, often turning over small stones and picking in the sand underneath; active and restless all the time, apparently not watching the observer, then suddenly running a short distance and taking wing, uttering a grating whistle as they speed over the surface of the water to a safer feeding-ground just beyond. In the few places where they can tarry unmolested, the birds become as gentle as the smaller sandpipers, and it is a pleasing sight to see the turnstone in its bright calico markings, one of the ornaments of our northern beaches. At the Magdalen Islands the boys often catch them with horse-hair snares, as they gather about the heaps of kelp. Along the Atlan-

tic Coast the turnstone is well known as one of the smaller varieties of big birds that "make up" the bag, and in many localities the name chicken is applied to this species. They come readily to decoys, and often the harsh, twittering note is the first evidence of their presence, and the gunner turns in time to see a bird quartering off to one side, just out of reach. The flight is graceful and fast; when suddenly alarmed by the blind a quick turn often makes the mark a hard one. Toward the end of September the young of the year appear and remain about our shores until late in the month. They lack the bright coloring of the adult bird, but at a short distance the general effect is the same. Turnstone are most often seen in small flocks and have no hesitation in associating with any of the numerous variety of shore-birds, big or little. In April the familiar note tells of their arrival on our southern shores, and we see them frequenting the same routes they left the summer before, stopping awhile before passing on to the final destination in the remote Arctic regions. These are reached in June. The nest is placed on the ground, sometimes sheltered by a low-growing shrub. In the breeding season the male gives its alarm note if the nest is approached, and then both birds fly to high ground, perching on rocks, if such are present, and watch silently, not moving while

any one is near. The nests are hollows in the stony beaches near high-water mark. The eggs are three to four in number and vary as much in coloring as do the birds themselves. The young are fledged in July, and we see the first flocks of old birds late in this month. The turnstone is occasionally taken, during its breeding season, far to the south, in temperate climes. That they ever actually breed in these localities is doubtful. On islands in the South Pacific, it is said, the natives keep these birds in cages as pets, and also match them against each other as fighting cocks.

Mr. Palmer describes the turnstone on the Pribilof Islands as arriving about the middle of July, and by the end of the month abounding everywhere, reaching the island by the north-eastern shore, flying southward until the killing-ground is reached; here they swarm about the seal carcasses and feed on the maggots that infest them, becoming so fat they are run down and captured by the young Aleuts. Soon after the first of August the birds begin to take their departure from the Pribilofs. About six in the evening a small flock of forty or more rise into the air from the village pond with loud, shrill cries, sweeping about the head of the lagoon and gathering fresh recruits, make a straight course high over the village and out to sea. From the

Pribilofs they pass to the Aleutian Islands, and hereafter we know little of the migration.

In distinction from the turnstone inhabiting the Old World and Alaska, the American species has been named the ruddy turnstone, on account of its brighter coloring.

BLACK TURNSTONE

(*Arenaria melanocephala*)

Adult male and female in breeding plumage — Head, neck, breast, and upper parts, dusky with a faint reflection of green; a spot in front and behind the eye with streaks on the forehead and the ear-coverts, white; wing, marked by a white bar; primaries, brown on outer webs, white on inner, with white shafts; lower part of back and rump, white; upper tail-coverts, black; lateral ones, white; tail, marked with a broad, terminal, black band; chest, dusky brown, lighter than back, white streaks on the breast; rest of under parts, white; iris, brown; bill, black; legs and feet, yellowish.

Winter plumage — Like the summer, but no white on head or neck.

Young — Similar, but upper parts and breast more grayish, and feathers above edged with whitish.

Measurements — Length, 9 inches; wing, 6 inches; culmen, 1 inch; tarsus, 1 inch; middle toe, .85 inch.

Eggs — Four in number; ground color, drab profusely spotted and dotted with brown; vary greatly in size; measure 1.70 by 1.15 inches.

Habitat — Breeds from Norton Sound, Alaska, possibly Point Barrow and northeastern Siberia, on the coast of North America to British Columbia, and probably on St. Lawrence Island in Bering Sea. Winters in California and Lower California south to Santa Margarita Island. Has been recorded from India.

A Pacific variety, most abundant on the northern parts of the coast, not ranging much below southern California. It is common on the shores of

Bering Sea and Alaska and most of the neighboring islands, often occurring with the common turnstone. The birds frequent the flats and marshes alongshore, as well as the beaches. They are often found some distance inland on ponds and smaller bodies of water. The black turnstone breeds in the northern portions of its range, placing its nest on the ground and laying four eggs of an olive color, finely mottled with black, closely resembling the surroundings. Locations along the coast near the water are selected. The young are fledged in July, and early in September follow the old birds on their migration south. In habits this species closely resembles the common turnstone.

CHAPTER XIII

SHORE-BIRD SHOOTING (*CONTINUED*)

THE OYSTER-CATCHERS

(*Hæmatopodidæ*)

A DOZEN species of large, strange-looking birds, with brightly colored, wedge-shaped bills, compose this family. Shy and solitary in their habits, they range over the beaches of most of the world, the American species never occurring far from the seacoast. The most peculiar character of these birds is the bill, and by this they can be recognized at once. It is about twice as long as the head, and straight, high, flattened on the sides and pointed, thus resembling a wedge, and is bright red or orange in color; the nostrils are large and set in a deep hollow. The eyes are either red or yellow, and the legs heavy and covered with small hexagonal scales. The oyster-catchers have no hind toe. Their cry is loud and rather harsh; and most of them breed on some slight elevation in the sand of the ocean beaches. Of the four species found in North America, three are confined to this continent, only one of them occurring on the Atlantic Coast, and one is a straggler from Europe.

EUROPEAN OYSTER-CATCHER

(*Hæmatopus ostralegus*)

Male and female in breeding plumage — Head, neck, and upper parts, glossy black; greater wing-coverts, pure white; primaries, black with most of inner webs white, the white extending to outer web on inner primaries; secondaries, white with black tips; rump, upper tail-coverts, and basal half of tail, white; rest of tail, black; spot below eye and lower parts from breast, white; feathers at junction of fore neck and breast, black and white; bill, vermilion; feet, purplish red; iris, crimson; eyelids, vermilion.

Winter plumage — The same.

Young — Browner on back than adult; feathers vermiculated and edged with sandy brown; primaries with more white, and a band of white on throat.

Downy young — Upper parts, sandy gray, mottled with black on the head, and striped with black on back, rump, and flanks; throat and thighs, blackish; rest of lower parts and edge of wing, white.

Measurements — Length, 16.50 inches; wing, 10 inches; tail, 4 inches; culmen, 3.25 inches; tarsus, 2 inches.

Eggs — Three or four; oval; buff spotted with dark brown and gray; measure 2.35 by 1.50 inches.

Habitat — Breeds in Iceland and the coast of western and southern Europe, and in eastern Europe and western Asia, from the Black Sea, the Caucasus, and Turkestan, north to the Arctic circle, on the banks of large rivers and lakes. Winters in Iceland, Great Britain, and the coasts of central Europe, south to both coasts of central Africa, and from the Caucasus to western India. Several have been taken in Greenland.

The European oyster-catcher apparently much excels our bird in its ability to adapt itself to circumstances and find a home wherever it may wander. Sometimes it lays its eggs on the bare rocks of a rugged shore, or in a slight hollow of

some gently sloping beach just above high water. One pair chooses an open spot on the bright turf; a second, some cranny among the drift of a river bank; while a third is contented to perform the duties of incubation among the prosaic surroundings of a potato field. Sometimes a simple hollow suffices it as a nest; often small pebbles or bits of shell are placed in this, and occasionally it is lined carefully with dry grass. But wherever the nest may be and however made, it is guarded carefully by the birds, who fly screaming overhead if any one comes near. In general the habits of this bird are similar to those of the American oyster-catcher.

AMERICAN OYSTER-CATCHER

(*Hæmatopus palliatus*)

Adult male and female — Head and neck, black; back, wings, and tail, slate-brown; rest of the plumage, including greater wing-coverts, upper tail-coverts, sides of the rump, base of the tail, and entire lower parts, white; bill, vermilion; eyelids, vermilion; iris, bright yellow; legs and feet, fleshy white.

Young — Similar to adult, but upper tail-coverts tipped with buff; bill, brownish; iris, brown; feet, gray.

Downy young — Upper parts, light fulvous gray, finely mottled with darker; lines behind eye and stripes on back, black; lower parts, white.

Measurements — The different individuals vary. Length, 17 to 21 inches; wing, 10.50 inches; culmen, 3.25 inches; tarsus, 2.25 inches; middle toe, 1.25 inches.

Eggs — Three or four in number; cream color with irregular spots, lines and markings of bistre; measure 2.25 by 1.65 inches.

Habitat — Ranges on the eastern coast of North and South America, from New Jersey, casually New Brunswick, and given by Audubon

from Labrador, south to Patagonia, and on the western coast from Mexico to Chili, and breeds probably throughout its range. Recorded in the West Indies; but these records may refer to *H. prattii*—a bird with a slightly different bill, described from the Bahamas.

One of the largest and showiest of our waders, formerly well known along the Atlantic Coast as far as Massachusetts, now, however, rarely straggling north of New Jersey. South of this point the oyster-catcher is well known and is found on the shores of the Southern states, the West Indies, and Brazil,—ranging on the Pacific from Mexico to Patagonia. In Virginia and North Carolina this bird is common, on the high, barren stretches of ocean beach; if approached, running rapidly just out of reach; when hard pressed, rising and uttering its note—a sharp *tseep;* generally flying a short distance and lighting in some commanding spot, the bird surveys the intruder, then runs along ahead. The gunners here seldom molest it, as there is no market for the flesh, and the sea-crow, for this is the local name, goes usually undisturbed. In the spring I have often seen the birds near Cobb's Island. They were in pairs, sometimes four or five together, and kept for the most part on the dry sand, though occasionally I have noticed them close to the water, and in one instance shot one over decoys on one of the marshes in the bay. The flight of the oyster-catcher is short and near the ground, but

graceful and speedy, and its size is better appreciated on the wing. This species nests along a greater part of its range, choosing for this purpose the highest portion of the beach, often laying its eggs near some dry drift. They are deposited in a slight depression in the sand, and in color resemble exactly the surroundings. In bright weather the birds leave the nest a large part of the time, covering it only at night and in stormy weather. The young are hatched late in May and follow the old birds in pursuit of food. This consists of various small shellfish and sand-bugs. The former opinion that the bird destroyed oysters is erroneous. The little oyster-catchers bear a close resemblance to the coloring of the beach and readily hide, while the parents exhibit the greatest distress, flying close by, uttering piteous cries, and doing all in their power to distract attention from the young. When hard pressed the birds occasionally take to water, where they swim and dive with ease. Through the summer often six or more are seen together, keeping to the same resorts along the beach, very rarely straggling up the bays and rivers a short distance inland. By early fall they have departed.

FRAZER'S OYSTER-CATCHER

(*Hæmatopus frazeri*)

Adult male and female — Similar to the American oyster-catcher in general plumage; the bill is stouter and more depressed; there is little or no white on the eyelids; the upper parts are

deeper brown, a broad zone of mottled black and white feathers extending across the breast.

Measurements — Wing, 10 inches; tail, 4 inches; tarsus, 2.25 inches; bill from nostril, 2.35 inches, from feathers, 3 inches; depth at angle, .50 inch.

Habitat — Ranges on both coasts of Lower California and rarely north to Ventura County, California, and breeds throughout its range. May prove synonymous with *H. galapagensis*, of the Galapagos Islands.

Closely resembling the American oyster-catcher in appearance, this bird has exactly the same habits. It frequents the shores of the islands of the coast of Lower California and possibly western Mexico. As early as January the bird mates, breeding on the high beaches.

It keeps close to the water's edge and feeds on small shellfish. It is shy, running rapidly along the beach and giving a clear whistle as it takes flight.

BLACK OYSTER-CATCHER

(*Hæmatopus bachmani*)

Adult male and female — Head and neck, black; remainder of plumage, sooty, with a brownish tinge; bill, vermilion; iris, yellow; legs and feet, pale flesh color.

Young — Similar, but browner; many feathers on upper parts tipped with buff.

Downy young — Upper parts, olive-gray, mottled with black; spot on crown and flanks, and lines from nape, on back, to rump, black; throat and breast, slate-gray; centre of throat and abdomen, paler; white spot in middle of breast.

Measurements — Length, 17 inches; wing, 9.50 inches; culmen, 2.75 inches; tarsus, 1.75 inches; middle toe, 1.50 inches.

Eggs — Two or three in number; light olive-buff, spotted with blackish and purplish gray; measure 2.20 by 1.50 inches.

Habitat — Ranges from the Aleutian Islands to Lower California. Breeds from California north, and winters from British Columbia south. Recorded from the Kuril Islands, probably by mistake.

From Alaska, along the Pacific Coast to Lower California, this bird ranges, frequenting not so much the sandy beaches, as is the habit of other oyster-catchers, but the rocky shores, feeding on mollusks and various small shellfish, among the seaweed. The black oyster-catcher is very noisy, and calls to its companions with a shrill, sharp note, readily answering if his cry is imitated. The bird breeds in the Aleutian Islands in May, depositing its eggs on the beach, the color of which so closely resembles the surroundings it is difficult to find them. In unfrequented places this species is not wild, but quickly learns to appreciate danger. It walks with a "solemn, stilted gait," bobbing the head up and down as it proceeds.

CHAPTER XIV

SHORE-BIRD SHOOTING (*CONTINUED*)

THE JACANAS

(*Jacanidæ*)

JUST where to place the jacanas, ornithologists were long in doubt; in their habits, appearance, and long toes they closely approach the rails; but in their internal anatomy, their plover-like bills, spurred wings, and the fleshy wattles on the forehead, they resemble some of the shore-birds, to whose ranks they have been finally joined. There are about a dozen species inhabiting the tropics of both hemispheres. They possess long and slender legs, long toes, and extremely long claws that enable them to run about on the broad leaves of the water-plants that grow in the lakes of their habitat. The bill is more sharply pointed than that of a plover, but the long and sharp spur on the bend of the wing and the strange lappet on the forehead, together with their extremely large, long toes, make them easy to identify. Only one species reaches our southern border, in Texas and Florida: active and noisy, it moves with perfect ease on the lily-pads that float on

the surface of the water, and if frightened retires to the dense vegetation where we must leave it.

A remarkable species found in southeastern Asia, with a total length of only eighteen inches, has a tail that is ten inches long. Four of the tail feathers are much longer than the others and arched like those of a pheasant. It builds a flat nest of grass and rushes which floats on the water, attached to the plants growing near. In this, and the six or seven olive-brown eggs it lays, it certainly resembles a rail much more than a shore-bird.

MEXICAN JACANA

(*Jacana spinosa*)

Adult male and female— Head, neck, upper part of back, and breast, black, with reflections of purple; lower back and wings, purplish chestnut; primaries and secondaries, pale yellowish green, the primaries bordered with blackish brown; rump, upper tail-coverts, and tail, dark purple; lower portion of breast and flanks, maroon; abdomen, thighs, and under tail-coverts, brownish maroon; a frontal leaf of three lobes, bright orange in color, covers the forehead from the base of the bill; bill, bright yellow; a sharp spur on the wing of orange; iris, brown; feet and legs, greenish.

Young— Frontal leaf, yellow, rudimentary; top of head and back of neck, pale brown; a yellowish white stripe from base of bill to nape; a black stripe behind the eye, broadening on the neck and upper back; back and wings, pale brown; primaries and secondaries, yellowish green; rump and upper tail-coverts, brown; tail, dark; upper parts in general, light brown; chin, throat, sides, and under parts, white, with a tinge of buff; bill, yellow; legs and feet, olive.

Downy young— Crown, back, and wings, orange-tawny; nape and hind neck, dusky; lines on back, from eye to hind neck, on

flanks, edge of wings, and thighs, black; broad band of ochraceous buff on sides of back; forehead, sides of head, last joint of wing, and lower parts, white.

Measurements — Length, 9 inches; wing, 5.50 inches; tail, 2.25 inches; bill, 1.30 inches; tarsus, 2.10 inches; middle toe, 2.05 inches.

Eggs — Four in number; ground color, drab, marbled and streaked over their entire surface with wavy lines; measure 1.20 by 1 inches.

Habitat — Ranges from the United States of Columbia and Panama, north to the Rio Grande River, southern Florida, Cuba, and Hayti, and breeds throughout its range, though not known to do so in Florida.

The jacana inhabits the tropics, straggling to the valley of the lower Rio Grande. The marshes along the coasts and bodies of water a short distance inland are their resorts, and they are found in Mexico, Central America, and the neighboring islands to northern South America. This bird is very common on the West Gulf Coast, and in May, 1901, I found it abundant near Tampico, frequenting most of the marshes, but more particularly where lily-pads and weeds covered the surface of the water and high grass about the edges afforded a hiding-place. There were always several pair about these marsh ponds, chattering and scolding, darting out of the long grass on to the broad, flat leaves, feeding a few seconds, then running back, noisy all the time, restless, flitting their wings, paying but little attention to our presence if we remained quiet. Should another

bird appear, the two often ran together, uttering harsh, clattering notes. Their appearance both on the ground and flying was unique, the pale green of the wings and purplish chestnut of the body with bright orange helmet and wing spurs being very conspicuous. The difference between the immature and adult plumage is striking, and the young bird would scarce be recognized of the same variety except for the characteristic habits and bad manners. Repeatedly I noticed the immature birds in pairs, and it seemed probable that the full dress is not assumed until after the second year. The jacana constructs a nest of grass, woven in such a way that it floats, if occasion requires. The eggs are peculiarly streaked with dark, irregular lines, well suited to an odd bird.

THE WATER-FOWL OF THE PACIFIC COAST

T. S. VAN DYKE

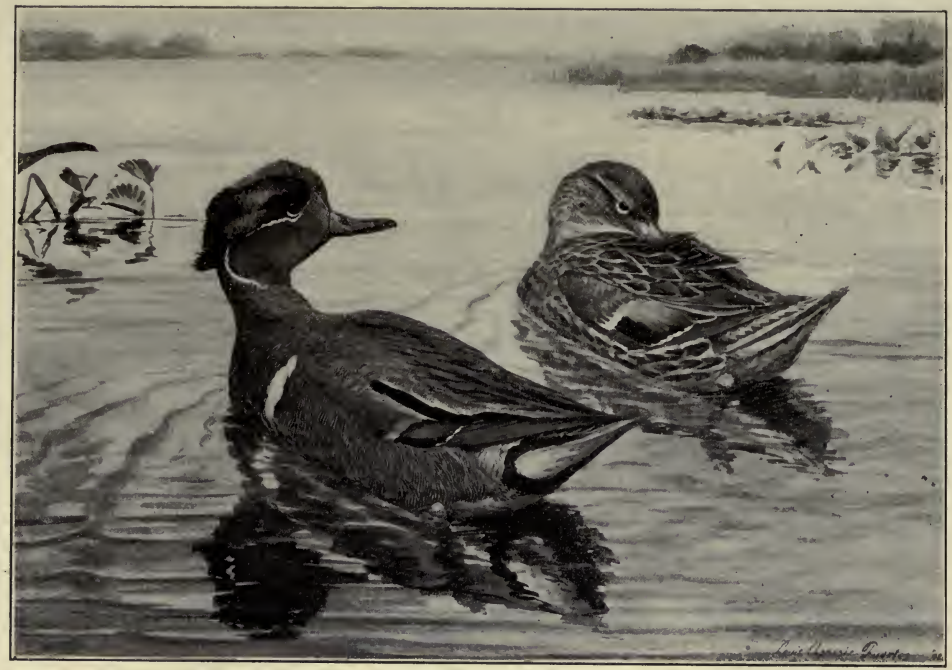
THE WATER-FOWL OF THE PACIFIC COAST

I

THE DUCKS

For the wandering birds that love the water, the Pacific Coast seems more of a natural home than the Atlantic or even the basins of the Mississippi and Missouri. On the latter the water-fowl are compelled to move south in winter, but on the Pacific Coast there is little reason but taste for travel in moving much south of Oregon. Yet they seem to love the drier and warmer sections, and it is but a few years since tens of thousands bred in California; while even to-day the mallard and teal and some others breed in southern California and even far down in Lower California (Mexico). It seems but a question of disturbance, for it is but a few years since the mallard made his summer home in ponds almost small enough to shoot across, nesting in the tall fringe of tule and typha that lined the shores for many yards into the water. Here the family spent the long summer days, floating calmly about on the smooth surface or muddling in little grassy coves,

but hardly ever seen on the wing unless alarmed. Then the whole party sometimes drifted into the girdle of green, and often the old ones rose and circled away on high while the little ones dived beneath the surface to rise again out of sight in the solid mass of reeds. When the American came to California he found all the ponds, sloughs, and lagoons dotted with ducks in midsummer, for the old Spanish settlers never troubled them. And the numbers were so increased in autumn by the great host that streamed out of the far North and knew still less of the wicked ways of man that, when the first rains of winter set the hills and slopes aglow with green, a good duck-pond in its setting, now tinged with russet and gold, was a sight worth the seeing. Here they spent the bright days of winter, some, like the widgeon, basking on the carpet of green that fast robed the land to the very edge of the water; others, like the teal, drifting along the shores or dozing in little sunny bays; others, like the canvas-back and the red-head, more in love with the middle of the pond, but all forming the most perfect picture of repose. In all nature I have found nothing so restful to the eye as such a mirror reflecting heaven's warmest blue beside the image of the snow that gleamed among the dark pines on the mountain behind, with the meadow-lark warbling the first notes of



GREEN-WINGED TEAL — MALE AND FEMALE

spring from the willows and cottonwoods that overhung the water, with a thousand red wings, golden wings, and golden throats, gleaming on the blackbirds that thronged the fringe of reeds, while the thrush poured forth his soul from the crimson and green of the heteromeles on the drier ground, with the mocking-bird joining in from the verdant head of the massive live-oak.

However abundant ducks might be there was rarely any flight by day such as once was common on the prairie, nothing equal to the old-time morning flight about the lakes and sloughs of the prairie and the adjacent river-bottoms, and nothing approaching that tumultuous whirl of whizzing life, now among the things that were, the evening flight. In some places a few ducks would fly about for a short time in the morning or evening, or both, and in other places all would move to some other pond or to the salt water. At night many flew out to feed on the grass or grain-fields, but a sun-bath from morning till night was the rule with the majority. Nor was there very much difference in many places even when the sky ceased its long smile and the storm-wind, bringing the needful rain, was strong enough to make a duck rejoice in the spreading of wing. In many places the movement was still not enough to make what in the prairie states would once have been called "a good flight," and too often the

only way to get good wing shooting was to have some one go about with a boat or horse and keep the birds in motion where the pond was so large that the game would not leave it. If the ponds were small, then it was necessary to drive them from one to another and hide along the line of flight. Where they were mere beads upon a slough this often made very fine shooting, but where they were solitary ponds the birds simply went to another and resumed dozing in the sun until roused again. The consequence was that good flight shooting was not to be had everywhere or every day, even where ducks were most plenty. And nowhere have I seen or heard of such pass shooting as I used to enjoy in Illinois, Minnesota, and Wisconsin in the sixties. In places there is fine flight shooting for a time, and there has been night shooting surpassing that of any other section, but in proportion to the number of ducks I believe that what we used to call first-class duck-shooting has been rarer on this coast than on the great flyways of the Mississippi watershed. The best of that shooting used to be without any decoys, which were used very little except in spring. But here in many places decoys seem necessary in autumn, though there are other spots where they are not. On the great prairies it was a certainty that thousands of the great travelling host from above would alight in

any of the larger ponds to spend at least one night, and that in doing so they would be joined by as large a horde that had been out feeding in the vast corn-fields of the prairie. To be almost mobbed with such a combination tearing the air around your head, while you stood struggling with a muzzle-loader, was a common experience of the last hour before dark; while a highly respectable attempt to duplicate it in getting out of bed in the morning was almost a certainty. Decoys would have been an absurdity at such times. And the thousand lines of hissing wings that came plunging out of the sky, or swinging up out of the horizon, curled, twisted, and darted in so many directions at such tremendous speed that one was treated to every combination of shots of the hardest kind.

I cannot find that any such flight shooting has ever been seen on this coast, and all that I have seen in twenty-seven years has been tame by contrast. Yet the difference is not all loss. On the prairie there was little to cheer the soul of the tyro. Without the slightest difficulty he could burn up all his ammunition only to see an occasional tail feather part its hold, with its owner flying all the faster for being relieved of it, and possibly see a wounded duck plunge into the shades of night where even his dog could never find it. Even the expert had to struggle with

ravenous mud, with water continually threatening the gunwales of his longest boots before he could get much fun, while the poor novice who had to venture a "pot-shot" from the shore was too often compelled to look with fond regrets on a bunch of dead ducks he dared not try to reach with the longest pole.

But on the greater part of this coast the ponds have firmer bottoms and sides, so much so that a horse can often be ridden and even a wagon driven through. In almost all cases it is a simple matter to drive a wagon within a few yards of the water and often quite easy to touch it dry-shod. The consequence is that you can often hunt in a wagon or on a horse, locate the game from a distance, and then swing round upon it as you wish. This will nearly always insure a rising shot which is generally hard enough for the tyro. But better shooting may be had by scaring out the ducks without shooting, and then hiding in the reeds or in many of the little gullies or cuts in the hard ground around their edges. If not shot at, and often if they are, they are quite apt to come back, singly, in pairs, and flocks for some time, wheeling and whizzing about at great speed before deciding to alight and thus presenting every style of difficult shot. In many places the water of flood years has gashed the plain with a long, winding gully six to ten feet deep, leaving a small

stream at the bottom which widens into ponds of every kind. Before the rapid settlement of the land these little ponds were beaded with ducks, even the lordly canvas-back and dainty sprigtail being content within their small compass. Along the edge of the cut one could still drive for miles on hard, smooth ground and sometimes keep a steady stream of ducks rising, shooting only from the wagon and stopping only when something fell. Such days are gone. The best of the larger ponds are now rented by clubs, while most of the long sloughs are on ranchos of thousands of acres fenced and forbidden. By feeding and judgment in shooting, the clubs are really increasing the number of ducks, while the stopping of indiscriminate shooting on the ranchos has the same effect. But one who knows how to enjoy the field and cares nothing for slaughter can easily find the way to shoot on almost any of the preserved ground.

On some of the lakes and sloughs methods of feeding have changed the flight of the birds, while on others they have preserved their natural flight so that it is quite reliable, subject of course to the eccentricities of the duck tribe which make it impossible to predict "a good duck day." In most cases decoys are relied on to bring the flying game within reach of a blind, and not necessarily to induce the bird to alight, so that decoy shoot-

ing is not always the easy work it once was in spring in the Middle West. In fact, the man who would wait for the bird to alight, or even wheel to return, as in old-fashioned decoy shooting, is quite apt to be left gazing at an empty sky. The ducks are now so suspicious of thick reeds and commanding points that without decoys they will too often fly high out of shot. But a liberal sprinkling of good decoys riding the water, which in some cases are left there the whole season, brings many a one on a lower course.

The only approach to the old-time shooting from a wagon is now along the irrigating canals, and even here it is generally necessary to get permission. The duck has also kept fair pace with improvements in guns and powders, so that he too must be consulted. Although in many cases, such as on the Calloway Canal, you can drive on the bank and see the game from a distance that will enable you to make a detour under cover of the bank, the ducks can see you quite as far. And they are fully aware of the meaning of a wagon on that same bank. They know that no innocent farmer is travelling on that line. So that about the time you stop the wagon they may take wing a long way off. Or they may toy with your intentions by letting you start on that detour and then paddling away as soon as you are out of sight. By the time you

make your detour, sneak carefully up the bank and raise your head, you see little but blank water, while a roar of wings a hundred yards or so on one side makes you wonder who it was that said the duck was not a game-bird.

All water-fowl are crazy over freshly irrigated land, and for the first twenty-four hours after the water is turned in they can hardly be driven away from some fields. In the great valley, San Joaquin, there are tens of thousands of acres of alfalfa and grain irrigated in winter, and outside of the club grounds these now afford the best shooting in the southern half of California. The best used to be on the great tule marshes of the Sacramento and the San Joaquin rivers and about their entrances into San Francisco Bay. Plenty of shooting and vast areas of good ground yet remain open there, though the best places are now owned by clubs. But even on irrigated ground the duck is still wary. It appears quite accidental, yet there is a marvellous method in the way he selects open fields with no brush or banks behind which you can sneak on him. So that for the best shooting it will generally pay to make a pit on the line of flight. In all such cases the water-fowl generally have some big lake or pond where they spend much of the time flying from that to the feeding-ground, such as Buena Vista Lake at the head of the San Joaquin Valley, from which

myriads of geese and ducks now stream to the feeding-grounds, making fine shooting at certain points on their flight each way. In all these cases decoys may be used to advantage on water, for many will dip even to a smaller sheet if they see company there. But there will be no such settling to decoys, at least in the earlier half of the season, as there was in what we used to call shooting over decoys in the Mississippi Valley. And it is doubtful if it will be the same, even when mating-time is near.

This coast has some ducks rarely seen east of the Rocky Mountains, and among these none strikes the eye of the stranger like a little duck that seems especially at home in the South.

THE CINNAMON TEAL

Robed in lustrous cinnamon with gray wings heavily barred with sky-blue, and bill of shining jet, he glistens in the bright sun as if born to shed his rays. Yet he is the most artless of his race, and acts as if he would really like to be your friend if it were only safe. About the size of the green-winged teal but a little trimmer in build, he is a swift flyer, and may bother you to send the shot far enough ahead to connect with his whizzing wing. Of all the duck family he is the most beloved by those who do not value game solely by the size of the dent it makes on falling.

Though this teal will breed in southern California if undisturbed, it loves a higher latitude for nesting and a far lower one for wintering. Far down in Lower California and even in Central America it lives, appearing in considerable numbers in California only in spring, where it seems to enjoy the bright beams of the mounting sun more than any other bird. While other ducks are paddling, diving, feeding, preening their feathers, or looking uneasy at the distant approach of man, this little duck drifts about in sublime peace, often remaining when the other ducks with thumping wings have climbed the sunshine out of danger. In the little coves, where the ripening alfileria fringes the bank and the golden flowers of the mustard are pictured in the quiet water, he floats as gently as if life were all a picnic; and rarely do you catch him feeding, diving, or even flying unless disturbed. When he migrates he goes like the king-rail that glides about the reeds with such silent step, and whose ringing call is so delusive. He vanishes as silently as he came, though he remains till long after the sprigtail has set his forked rudder for the northern sky, and the burnished green of the mallard shines no more on the bright face of the lagoon. But hardly ever do you see him dot the upper sky, come hissing down the northern breeze in autumn, or rise upon you over the horizon like a charge of grape-shot

from the under-world. He is all gentility, the ideal of contentment, a picture of repose. He is too pretty to shoot, though when other ducks are scarce he may have to fill the breach, as none surpass him on the table.

THE WOOD-DUCK

Years ago, when I used to hunt on the tributaries of the Mississippi, the beautiful wood-duck was not only the first of the ducks from the north that gave much shooting, but it bred on the grounds in numbers sufficient to give fair sport before the wings of the great northern host began to sing as they rode downward on the shades of night. And even before that, around every bend in the slough, one could get a good shot from the canoe at ducks still young but strong of wing, while almost every log that projected into the water had a flock or two basking in the sun in a manner quite tempting to the tyro.

Nothing of the sort seems to have existed on the Pacific Coast to any extent, and not at all in the southern part. The fulvous tree-duck, a true wood-duck, breeding in hollow trees, seems the only representative of the family here. It is a light fulvous or tawny yellow, with larger spread of wing than the eastern duck, but sadly short of it in color and grace, and not abundant enough to be a factor of importance in any of the shooting.

MALLARDS — MALE AND FEMALE

In the southern part it is rare except as solitary specimens, though I have seen seasons when in places they would make five per cent of the bag. But it is not an interesting bird like its cousin of the East.

The most universal duck on this coast is

THE MALLARD

The mallard is found everywhere, from coast to mountain top and from Alaska far into Lower California, wherever there are a few square yards of water out of reach of the gun. And even where its thunders are most frequent he often takes his chances in dodging, relying on his superior acuteness, which is fast becoming a highly respectable reliance. His improvement in climbing skyward at the first suspicion of a hat in the reeds, or the first glimpse of a boat, is in almost exact proportion to the improved range of guns, while the period of his return is in about inverse ratio to the increasing speed of fire. And his swift upward whirl is often too much, even for the best repeating gun, and sometimes even makes one doubt the efficacy of a double gun. He has dropped the old habit of skimming the tops of the reeds so low that he cannot see what is in them until too late. He has also learned the unprofitable nature of fanning the shore-line with his wings. He now winnows the breeze far above

the middle of the pond, studies it well from several points of view, then arches his neck, bobs his head once or twice, sets his wings in a stiff curve, and slides down an almost vertical incline, from which he is prepared to spring aloft at any second. When he reaches the water he rarely troubles himself about the opinion of other ducks that may be there, but spends several minutes in looking about before unbending the vast dignity of his suspicion. Only after a long season of quiet does he venture near the shore, and long of range must be the gun that can reach him from the reeds. Of course, he falls into some errors about the range of the latest nitro gun, but generally his judgment is as good as that of the owner of the gun.

Not much better is the case when he travels in company. The big flock that used to pass your blind at thirty yards, sweeping but a few feet above the water with long, brilliant necks outstretched and glittering in the sun like couched lances in a charge of cavalry, now swings away on high where you will be lucky if you can stay the climbing power of even one, while the double shot in such a case is almost a special dispensation. And if they have seen you, there is little use of fattening hope on thoughts of their return. If they have seen a few inches of that gun, they are likely to inspect several other quarters before

stirring your nerves again. And you need hardly wait until dark to see any more come pouring in. There are places where there will be some flight in the evening, but in many others silence broods more deeply as the sky reddens in the west. Yet, when the first scouts of dawn plant their golden standards on the peaks of granite in the east, if you are well hidden, you may often find the mallard in a hurry to go to or from the water, and not quite so particular about his line of flight. Sometimes he has been out feeding on the grass or in the grain-fields, and is in haste to rest his legs in the cool water, while in other places this may be the very time when he will scud away to feed along the shore inlets, or even go out to sea for a change.

In size, color, and general habits the mallard of this coast hardly differs from his cousin of the prairies. Like all of the most wary animals he is sometimes caught napping; but, on the whole, is now a bird that commands the respect of every one who loves the gun, as beautiful as he is shy, and one of the brightest of the great tribe of the wild and free.

THE SPOONBILL

In spite of its rich soil and warm sun this coast cannot compare with the prairie states in turning out fat ducks. There is no feed to equal wild

rice or the corn of the great corn-fields, and the rich feed of summer seeds here comes too late. Some ducks are still good in spite of lack of fat, such as the teal and mallard, but others that are fine when on good feed become dubious fare when the banquet fails and they have to descend to common food. Such is the spoonbill on the greater part of this coast. A good enough duck elsewhere, and good enough here when he carries fat enough to cook himself, he is yet such a poor skirmisher for corporeal beatitude that he is generally in disfavor. In the midst of ripening alfileria, burr clover, and all the luxuriance of a California spring, with the light rippling in silvery waves over the ripening wild oats and grain, heading out all around him, he can keep poorer with no apparent effort than anything else that lives. Too lazy to hunt good feed in many places, he lives on muddling in dirty ponds that little improve his flavor. Hence he is in disfavor when in his natural state, and it is considered a fine joke when some one in haste shoots a spoonbill by mistake for a mallard. On the feed of club grounds he can fatten into a good duck, and such will probably be his future. While stupid compared with the mallard and some of the larger ducks, he is still smart enough to be interesting. He has even less of a regular flight than the other ducks, and is little on the wing unless

stirred up. He prefers to sit around in the ponds and muddle, and often spends days at a time in some little hole. But when he does mount the air his black and white, chestnut and blue, with crimson feet, long neck, and head of burnished green, make him often easy to mistake for a mallard.

THE GREEN-WINGED TEAL

The blue-winged teal of the Mississippi Valley, a flyer of wondrous speed and, for his size, the most charming of all eastern ducks, seems lacking on this coast, though some specimens may be found in the North. But the common green-wing is abundant and is apparently the same as in the East. One who has had them hiss through the falling night like a charge of grape-shot, just missing his head to fade in the gathering gloom before he can whip his gun into position, has acquired a love for these teal that no change of their habits can alter. Though he travels in flocks and makes as good time with his rapid wing as elsewhere, the green-wing is not such a factor in general duck-shooting as in the old-time evening flight of the prairies when he added so much to the uproarious tumult that jarred your steadiest nerves. Then so many sprig-tails were riding down the darkness, so many gad-walls plunging out of the fading blue, so many mallards thumping the twilight, you could hardly

stop to shoot at smaller ducks. Or if you could, there were bluebills by the score, rending the air with stiff-set wing, widgeon pouring in with plaintive whistle, with wood-ducks filling up the chinks in what was left of daylight. Yet the rush of smaller wings in greater bunches, the incessant whisking of teal between you and the bird, when you raised it on some larger duck, made those thrilling moments even more lovely.

Here the green-wing is more of a substitute for something better and, with the cinnamon teal, is at times the only duck on which any shooting may be had on some grounds. There are many small ponds and chains of ponds, sloughs, etc., too small for the other ducks to trust themselves on. Or if they take the chances of being too near the shore, find they have made a mistake and leave, there is little use in sitting down to nurse a hope of their return. But the teal, even when quite wild, does not like to be driven from some favorite spot. Suspicion is not enough for him, and he is quite apt to return to look for certainty. If you are well hidden, the flock may come whizzing back upon you in two minutes. And even if it steers far up into the sky, it does not follow that it will be gone more than five minutes. And so determined is this little bird sometimes in the choice of its ground that even when you are standing in plain sight it will rush, dart, and twist all around

your head in such a way that only the expert can hit one and then, having left the tyro pointing at vacancy, may alight within a hundred yards or more of him, as if in supreme contempt. And sometimes on some of the larger ponds the teal is the only salvation of the bag, for he will often remain after the canvas-back and the red-head have indorsed the opinion of the mallard and the sprigtail that there is a flavor of a new nitro powder in the air.

THE "SPRIG" OR PINTAIL DUCK

Less brilliant than some of the ducks, the elegant arrangement of brown, black, and white, glossy with green and violet, that robes the sprigtail, his trim and graceful figure, large size and gamy manners, make him quite as attractive as any of the ducks. He is apparently the same here as on the Atlantic side of the country, a bird always so welcome that you feel no disappointment when what you supposed a mallard shows the long tail feathers trailing against the sky as he comes within shot. But on this coast he has a special charm as the first duck that arrives in any numbers from the north, especially in southern California. The duck is never more attractive than when he first looms into the circle of expectation, and the sprigtail swinging one hundred strong around some bold promontory on

the coast, now dotting the blue sky and then the blue sea as they rise or fall, is one of the sights that stir the strongest fever in the blood of him who yearns for the coming of autumn. For it is long before the silvery honk of the goose begins to fall from the sky, or ever the sand-hill crane rolls his trumpet notes from the blue vault above him. You can then shoot the sprigtail in goodly numbers when there is no other duck flying, unless the few that have bred here. Again in the spring you may find him lingering around some little pond hidden in the timber, or in some larger one from which he can waddle with ease out upon the rich grass, for days after the snowy side of the canvas-back has ceased to shine on the lagoon and days after the glistening green of the mallard's head has vanished in the northern sky.

In the meantime the sprigtail leads somewhat of a humdrum existence, associating with all other ducks after they come, sitting about on the still face of the waters, enjoying the winter sun as much as any tourist in the city park. He does very little muddling or diving, most of his feeding being at night on grass or grain. But on freshly irrigated ground he will do a full day's work of feeding and muddling as well as the rest of his friends. Except during the first days of his arrival he makes no shooting any different from the rest of the

large ducks with which he is nearly always more or less mixed. Yet there are days when there is no pintail in sight, and other days when half the bag may be made of them, so that they are never reliable. Yet scarcely any duck is more welcome, while none surpass the sprigtail in those mysterious attractions that are all the more attractive because so mysterious. If we could say wherein the charm of the field lies, it is doubtful if the charm would be there.

THE CANVAS-BACK

It is no less difficult to say what there is about the canvas-back that so makes expectation throb when his white coat begins to glimmer in the sun. It certainly is not its flavor, for it is here a very common duck, and generally not as good as the teal. Yet a fever begins to consume your soul as the bird rises into the line of sight that grows ever more raging as the bird approaches the line of fire. Surely it is not because of its size, which is less than that of the mallard. Nor is it because of superior gamy qualities, for, though as wild as the mallard in vacating on the slightest suspicion, he is far his inferior in getting out of the way of the gun after it begins to shine. He knows little about climbing out of the way of a tenderfoot's gun even after it is raised, and often makes a failure in sheering off where there is

plenty of time, of which the mallard is quick to avail himself. Yet there is little game that causes more satisfaction than when at the report of the first barrel a whirl of white and gray goes over with another turning over before the first has reached the water. Decoys seem more necessary for this duck than for any other except the red-head, so much so that in some places it is idle to try to do much without them. This makes less variety of shots than you can have from other ducks like the teal. And if you find a large pond well filled with them and scare them, the chances are they will all leave for several hours, and give you none of the wild whirling lines of return from which you can pick such a variety of shots on other ducks, and occasionally make that greatest of all shots, the cross double, in which you take two birds going in opposite directions, one with each barrel.

THE RED-HEAD

Though duller of hue, the red-head is so much like the canvas-back in action that the shooting is about the same. I have found it much more attractive on their breeding-grounds around the upper end of Klamath Lake in southern Oregon, just before they begin to move south. Thousands of acres of reeds and grass surround the lake, threaded at the upper end with sloughs, inlets, and streams. Many of these are great spring

creeks alive with huge rainbow trout, and most all of them are large enough to allow the finest canoeing. Most all the ducks, as well as the sand-hill crane, Wilson's snipe, and many other snipe, breed in the marsh-grass and reeds of this section and, when getting ready for the southern movement, add rare variety to the entertainment of him who has been wise enough to try the grand fishing at Pelican Bay or Williamson's River. Around the points and over the points the young birds try their wings morning and evening, while at all times of day great numbers may be stirred up by paddling up many of the sloughs that lead in all directions. Out of the long grass, too, where it is partly under water you may raise them in a way that will remind you of the finest grouse-shooting of the prairie. Upper Klamath Lake is also a great breeding-ground that will repay a visit in many other ways as well as in the quantity of ducks one will see. Early in the fall they stream out of there, down Williamson's River, in a way that may remind you of old days somewhere else when a good shoot on flying ducks was almost a certainty. Oregon is full of such breeding-grounds, and one of the finest features of hunting water-fowl on this coast is that one does not have to go into the far North beyond all else that is attractive to see the gathering of the clans for the winter raid on the sunny slopes of

California. You can stay in the midst of the grandest trout fishing, deer and grouse-hunting, and yet have a fine duck shoot in August. Most of the ducks breed still farther up the coast and even in Alaska, but these move so early that you will find many of them in Oregon mingled with the birds that have bred there.

THE WIDGEON

No one who has ever heard that tender whistle with which he generally heralds his coming, can ever forget the widgeon, and he is always welcome even among larger ducks. Amid the storm of lead that greets the rovers of the sky on this coast he holds his own about as well as the best, and wherever there is much shooting worthy of the name, the white-crowned beauty will be an essential factor in it. Next to the sprigtail, he is among the early ducks of fall, and stays as late as any but the cinnamon teal. While the rest of the ducks may stay on the water the whole day, every widgeon in the pond may be out on the bank sitting in the haze of gold and green the burr clover spreads along the sunny shore. There he may sit day after day among fine feed on which everything else is fattening, but you will not find him eating much of it, except at night. But turn a head of water from a ditch on some piece of ground, and he will be there before most

of his companions discover it. But do not imagine he is any easy victim because he sits in the grass. He is wide awake even there, though he may make an occasional mistake about the attainments of a tenderfoot who is not too much afraid of grass stains on his pants. There is little or no special shooting on this duck, as there sometimes is on the sprigtail or canvas-back. Though like any of the ducks he may sometimes be found alone, he is generally in mixed company and is hunted in about the same manner as the rest of the tribe.

THE GADWALL

Nature surpasses all art in the combination of simple colors she has made in the gadwall or gray duck. Black, white, gray, and brown, as woven in its gamy robe, have made beauty as perfect as it could have been made with more brilliant colors, so that there is hardly any feathered game on which we look with much more satisfaction than on the fallen gadwall. It is the same on this coast as elsewhere, and is now so wild and wary that it is rarely in much danger from any but the expert. Even with him its charming addition to the bag is too often accidental, for it is rarely found in sufficient numbers to be worthy of a special hunt, and it is quite common to have a fair flight of ducks keep your gun warm without the presence of the gray duck. It is less

distinctive in its manners and mode of life than many of the others, so that less reliance can be placed on it. It appears more often as a surprise among a more numerous company, and it is often a surprise in another way, for if one is not in full practice, one is quite apt to underrate the speed of this large duck. And the distance at which he keeps, with his heavy armor of feathers, enables him to laugh at any old-time hunting outfits. All the larger ducks have learned so much that it is now of little use to expect much of a bag with anything but the best of modern guns and ammunition. And these do not fully balance the increased distance at which most shots must be made, so that careful "leading" or shooting far enough ahead of a crossing duck is becoming all the time more important. More care has to be taken, too, with blinds, while the decoys to which ducks would readily pitch thirty years ago would now drive half the ducks out of a pond. The shooting is thus becoming more of a science, — a game in which only the experienced can play. The tenderfoot has had his day. It was a great one, for never was there more easy work than among the great masses of ducks that poured upon our sunny plains in winter. But the granger with his grandfather's gun gave up some years ago, and the tenderfoot, even with the most modern equip-

ments, is little better off until schooled by many a day of disappointment.

OCCASIONAL DUCKS

Like most parts of the East, the Pacific Coast abounds in ducks rarely found in sufficient numbers to make special shooting even where large enough, but which mixed with other ducks are sometimes worth shooting. But some ducks seem wholly wanting here or, if on the coast at all, are very rare and remain most of the time in the North. Such is the black or dusky duck, such a fine bird on the Atlantic Coast. The golden-eye, a good duck on certain kinds of feed, I have never seen here and cannot find any one who has, though it would be strange if a duck so widely distributed were completely missing on this whole coast. As ducks from the great basin between the Rocky Mountains and the Sierra Nevada go down the Colorado each winter, and as it is but a short flight across from the Rio Grande, and, for a duck, no trip from there to the head waters of many streams leading into the Gulf of Mexico, and as most of the ducks at the mouth of the Colorado summer on the Pacific Coast, returning by way of Cape St. Lucas, or crossing the mountain ranges of southern California, it would be strange if all the inland ducks of the United States were not represented in some way on this

coast. The same may be said of the blue-bill and the blue-winged teal. They ought to be here, but as far as I can learn they are not.

But about all the rest of the buffle-head ducks besides the golden-eye are here, many of them fair ducks, deficient only in size. There are apparently several varieties, though most all may be only variations from one or two, or possibly hybrids. There is a great variation in the widgeon on this coast, much greater than I know of elsewhere, and so extensive as to puzzle one who is not a good naturalist. Dr. Coues says there are some fifty varieties of hybrid ducks, and that some of them are fertile. Whatever the reason, there are some ducks here that I cannot exactly name, and much better naturalists are puzzled about some of them.

But there is no ground for mistake about the little ruddy duck. It is but a short time since he was despised by all as too small and too tame and, by many, associated with the fish-ducks. Even to-day he does not count as a duck in the records of some of the clubs. Yet if you can find him flying over some strip of land from one pond to another, he will drive at you like a base-ball from the hand of the pitcher. You will then find your hands quite full to hold the gun far enough ahead, as with wings hazy with speed and making little or no effort to avoid you one cleaves the

strongest breeze as if it were play. And when one comes directly at you, or but a few points off the direct course, the way he can be behind you before you can pull the trigger is one of the funny experiences of duck-shooting.

All the mergansers or sawbills, fish-ducks, sheldrakes, divers, dippers, etc., seem fully represented here, with some varieties I never saw elsewhere. So of the scoters or surf ducks, which, in places like the head of the Gulf of California, may be seen by the acre in winter. They all brighten the landscape, but I have not yet found any of the tribe worth cooking and none that would be attractive for one who loves shooting that demands high skill.

On the whole, what we lose in the black duck and some others, and in the evening and morning flights of old days on the prairie, is more than compensated for on this coast by the length of the season and the greater number of bright, warm days on which we can hunt without discomfort, by the absence of howling winds and freezing waters, with less voracious mud but firmer shores and quick transition from one to the other instead of long, slow wading.

II

THE GEESE

No one who once hunted the wild goose ever again used the expression "tame as a goose." If there is any bird for which the hunter has an unbounded respect, it is the goose, for in proportion to its numbers he can generally bag less than of almost any other bird except the whooping crane and the sand-hill crane. And few things so amaze even the expert on other birds as to lie hidden on some fine flyway with an average of a hundred geese a minute passing for two or three hours, and see every one that rises over the horizon headed right for his gun sheer off just enough to make it hopeless about the instant he is ready to pull the trigger. He changes his opinion about the goose being tame, clumsy, or slow, and concludes he is quite worthy of his best efforts.

Both by nature and art this coast seems specially made for the goose. With endless breeding-grounds in the far North, and in the South vast sweeps of plain and slope carpeted soon after the first good rains with burr-clover and alfileria that make the richest of feed, with ponds and lagoons shimmering in the bright sun of winter in which

he could lounge away the middle of the day, his home was quite ideal. And when thousands of acres of grain began to shine upon the plain it only meant for many a year more feed and more geese. Hence the goose was found here, especially in California, in numbers quite incredible even to those who saw geese in Minnesota and Illinois forty years ago. As late as 1875 the plains and slopes about Los Angeles were dotted as far as I could see, not with geese, but with flocks of them. It was the same down through the handsome plains of Orange County and down the coast table-lands through Santa Margarita and far into Lower California. In the San Joaquin Valley they covered thousands of acres of huge lakes like Tulare, while the sloughs and ponds in the sinks of the different streams shook beneath myriads of wings. Where the grain-fields covered tens of thousands of acres, as in the Sacramento Valley and Lower San Joaquin, bands of armed horsemen were regularly employed to scare them off the grain by riding about and shooting at them, until "goose cavalry" became almost as much a part of a huge grain ranch as the threshing-machine.

THE CANADA GOOSE

Chief among them all was the Canada goose or "honker," robed in gray and dusky hues with

the white collar of his tribe, and apparently the same as the goose of the Atlantic states or the prairie. Out of the far northern sky he drifted upon us in long, wedge-shaped masses, crescents, and converging lines, with the mellow "honk," so penetrating yet so sweet, falling from almost every quarter of the warm sky by day and at night so thrillingly near it almost made you clutch the gun in sleep. The sun rose upon him standing in groups where the golden violets were starring the greensward, waddling about where the little baby-blue eyes were peering sweetly out of the springing wild oats, or feeding where the delicate crimson of the purslane tempered the brilliant green of the malva. Here comrades from the distant ponds where they had spent the night were joining him, with stiff-set wings lowering them down long inclines to the tune of innumerable throats, and there some that had fed early were rising with obstreperous wing to go back to the lake for the morning.

And what a sight that lake often was about the middle of the morning! Even on such small ponds as the laguna back of the ranch house at Santa Margarita, covering scarcely eighty acres, it was a sight that took me there many a day, though I had so much game all the time I cared nothing for shooting at any special kind. Between nine and ten in the morning the geese began to swing

into sight over the verdant table-lands and plains, with many a silvery "honk," rolling in from every quarter of the horizon. High in air they floated with ease, quite wondrous for bodies so heavy, and still more charming was the grace with which they drifted down a thousand feet or more to the water. There was none of the rushing and hissing of wings with which ducks descend from on high, but the whole movement was one of vast dignity well worthy of the grand scale on which it was performed, and of the background of land and sky that alone made the fairest of pictures. Sometimes a dozen flocks would be coming in at once, but all seemed conscious of doing some very solemn act, for, from the time each flock decided to settle to the water, every ringing throat was hushed and every wing changed to slower stroke, with all stiff-set at times. Some flocks came nearly over the edge of the pond before lowering, while others began as far back as a mile or more; but in all respects the action of geese alighting in water at this time of day is totally different from their alighting on the ground, and often as different from their settling into the water at night to roost.

Here came a flock in a long, spiral line, starting almost over the centre of the pond and curling down like a winding staircase, with every wing motionless as the throats that but a moment ago

were so melodious in the sky; there, another band a hundred strong in a long line end foremost and winding like a snake out of the blue, every wing so still it seemed as if the motion must be due to the constant changing of the reverse curves, yet with the whole lowering slowly, certainly, and silently toward the centre of the pond. Others were in the wedge-shaped masses or converging lines in which they thread the upper sky on long flights, but the same rule prevailed in all, general silence and a slow drifting downward to the water as gently as a snowflake, often skimming along its surface for several yards, with every wing outstretched before lowering the black feet, raising the black head, and throwing back the big, gray wings for the final splash.

Yet with all this abundance that covered acres of water almost solid with geese, in an hour or two it was no easy matter to get one, even long before the tenderfoot with his cheap gun, the market shooter with his barrels of ammunition, or big-bag swine without the excuse of the market shooter, had made them far wilder. A shot with the gun from anywhere along the edge of the pond was next to impossible, and it was scarcely any better when they flew out, for a goose can climb high in air quite rapidly for so large a bird, and he knew enough to do it. Any kind of a blind in the water at once aroused their

suspicions, and they came in so high that even a floating battery would have been seen by most of them. By having a few small floats and sticks out in the water, at distances already tested with the rifle, I had some fine shooting from a patch of brush on one bank; but at every shot the whole pond shook with a heavy roar of wings, and I had to wait for a new lot, which would alight, probably, in a different place. As the shooting was rarely under three hundred yards, and the aim had to be taken at a single goose, there was no certainty about it, even with globe-sights. But it made elegant rifle shooting, and there is no way in which such fine fun may be had with the goose This could then be done in any of the larger ponds, and at almost any time of day one could get plenty of shots at geese out on the plains, — though you had no way of fixing the distance, which kept ever changing.

Though I have known the goose forty years, and seen him in the wildest places, I have never seen the time when one on foot could approach within shot-gun range except under some kind of cover. Once in a long while a flock seems stupid, so that some may be killed with a long shot, but the rule is quite the other way. And even a blind from which to shoot along one of their lines of flight must be something natural if it shows above ground. And a cut or gully is better even

than a bush, of which they soon become shy when there is much shooting out of them. Nor have I ever seen the time when it was safe to show much of your hat, while a few inches of shining gun moved a little so as to have it ready, were always quite certain to make geese sheer off just a little too much. Equally fatal was too much craning of your neck to see if they were coming, and too much wiggling about to get in just the right position for the supreme moment. I always found the best results from keeping perfectly still until the heavy *wiff*, *wiff*, *wiff* of wings was just over me, and then depend upon quickness in springing into position to shoot.

In most places a natural blind and without decoys will no longer do, and one must dig a pit in the ground and have plenty of decoys, though this is tame beside the other way. Like any shooting that becomes too easy one soon tires of it, but it is now the only sure way to get a goose. Such methods as shooting from a wagon with horses in full run are no longer possible, for the goose will not allow a wagon to come near enough for the final dash. But for warming up the inner thrill department it had no equal. It needed only a light wagon with a pair of lively mustangs used to the badger-holes of the plain, with a fearless driver and a man with the gun that could stay in the wagon and shoot at the same time. The

wagon was driven along on the windward side with no one looking at geese or even talking about geese. As they were rarely shot at from a wagon or horse, it was easy to get within seventy yards or so. The team was then suddenly wheeled and sent in wildest run directly at them. As geese almost always rise against the wind, the few seconds lost in getting under way often brought the bouncing wagon directly under a flapping and honking huddle of black, white, and gray, thumping the air in all directions. To land one with each barrel without landing on your head behind the wagon was the main problem, while sometimes the next question was whether the driver would be able to stop the horses while anything was left of the wagon.

THE WHITE-FRONTED GOOSE

Less imposing in size and voice than the Canada goose, the white-fronted goose is still an important element everywhere in goose-shooting and nowhere more so than on the Pacific Coast. Here, as in the Western states, he is called "brant" or "gray brant," to distinguish him from the dark brant of the sea-coast. But he is not a brant, cares almost nothing for salt water, but loves the plain rolling afar in all the wavy lines of light the sun can weave on undulating green, especially where some bright gem of a lake bestuds its

sweeping breadth. This goose is found in vast numbers in California in winter, covering much the same range as the Canada goose, while his "clank-a-lank" often rings from the upper sky even before the deep-toned "honk" heralds the approach of the time for rain. Like the larger goose he fails to get as fat here as he does on the corn-fields of the prairie, though the grass and grain-fields on which he feeds fatten cattle and horses fast enough. Yet he is a good bird in spite of it and always worth shooting. But this is no easy matter, for he understands the gun about as well as his larger cousin, can wheel even more quickly and get under way with less trouble. He is a little more apt to make a mistake about the range of a gun, but you can never rely on his doing so. So that about the same general methods must be used as with the larger goose. When this goose alights on land he acts somewhat like other geese, but when he alights in water his style is wholly his own, and few things are more amazing than the number of people who have hunted geese without ever seeing this wild play.

His coming is told afar by clangorous notes, heard even before the line of dark dots rises against the sky out of the horizon. Instead of lowering toward the water the geese only seem to rise higher into the vault of blue. On they come, perhaps two hundred strong, and a thousand feet

BAY SNIPE-SHOOTING

or more high, when they suddenly slow up for a moment as if to assure themselves that they are over the centre of the pond. Then the edge of the line begins to break off, for birds are suddenly tumbling, whirling, pitching, falling in all sorts of lines and motions. Head first, tail first, it makes no difference which way they start, for in a moment they are whirling over into some new position, on their backs with tips of wings pointed skyward, then standing in air with tail down and wings still skyward as if outstretched in prayer, then as suddenly darting off on one side in a long, swooping curve, every one in a grand go-as-you-please somersault and the whole line whirling to the water. With wondrous quickness the one that first comes within ten yards of the water rights himself and sets his wings, the next wheels over and falls into line beside him, then another and another until perhaps the whole flock are drifting solemnly over the face of the water with every ringing throat now hushed. A few rods they sail almost touching the water, when they gently raise their heads, lower their tails, lift their wings, drop their feet, and with a soft swish they are at rest.

THE SNOW GOOSE

The snow goose, commonly called "white brant" to distinguish it from the white-fronted goose or "gray brant," often seems more numerous on the

Pacific Coast than either of the other geese. It often gathers in flocks so large that when streaming over the wavy green of the plain with some huge mountain for a background it almost matches the line of snow upon its crest. When standing on the green it often looks as if acres were drifted over with snow, while its clamorous pipe adds to the music that day and night vibrates between earth and sky. Its flesh is dark and not quite so good as that of the other geese, but when fairly fat it is still a very good bird. It is game to the very last, puzzling even the expert to bag in any fair way, while the tenderfoot can easily see millions in a day without pocketing one. Its mode of life and travel is much the same as that of the other geese, with which it is often in company, and the ways of shooting it are alike.

The snow goose is fairest when alighting in water, where his manner is quite unique. He too comes in high in air as if he would cross the pond. But as it nears the edge the flock lengthens and then rises in front until it hangs in a column at an angle of fifty or sixty degrees with the level of the water. Then, with every black-tipped wing thrown forward and downward in a rigid curve, and every snowy body parallel to the inclination of the column, each bird floats downward as softly as the streamers of fire from a rocket. How bodies so heavy can so hang in air and preserve such

perfect rigidity during several minutes of descent, drifting perhaps a thousand feet while falling as far, yet without the slightest break in the ranks or any breach of their vast dignity, is one of the great puzzles of nature. Time and again in the Western states I have seen all the geese alight in water, but only in California have I seen all three at once, not in hundreds but by thousands, all descending into a circle of a few hundred acres. Such was a common sight in winter before the rapid settlement of the southern plains and slopes, and whether viewed from the water's edge or from some hill half a mile away was a sight equally wild and wonderful.

OCCASIONAL GEESE

Mingled with the larger geese are often some small ones, but rarely in any quantity and generally mere occasional specimens. But one of them, the smaller Canada goose or "little honker," is sometimes found in bunches of some size. This is not much more than half the size of the large goose, though apparently of the same color and markings, and is probably Hutchins' goose. Yet it varies enough in size to indicate two varieties.

That there are two varieties of the snow goose and probably three here is quite certain. They are much smaller than the regular snow goose, one of them looking more like a duck. The latter is

so rare it may be an abnormal specimen. Neither of these is common, and one might see geese all winter without seeing one of these kinds.

The same may be said of the white-fronted goose. I have seen some of them little over half size, but they are so rare that one might hunt all winter without suspecting the existence of one.

THE SALT-WATER GOOSE OR BLACK BRANT

All the geese so far mentioned are lovers of the plain and its fresh-water ponds. They are grass and grain eaters and love the water mainly as a place of rest. Hence they have little to do with the salt water, though in travelling they often swing out to sea. But there is one of the family that loves the sounding brine so well he will have almost nothing to do with the shore. Even on the beach itself he will not set his chary foot if it is dry, and rarely even when it is still wet from the receding tide. This is the black brant (*bernicula nigricans*), — not the brant of the Atlantic Coast, which is of much the same general coloring. The latter is not found on this coast, while *bernicula nigricans* is almost wholly wanting on the Atlantic. It is the most gamy of all our water-fowl and generally the finest flavored, the slight marine flavor being like the oyster instead of fishy. This brant seems well aware of the esteem in which he is held and is very shy in his southern visits to

the land of the gun. Breeding far in the North in great numbers, he spends most of the winter along the upper coast, visiting California only at particular places. Tomales Bay, near San Francisco, and one or two points above are stopping-places, but I can find no record of his entering San Francisco Bay, though thronged by all other water-fowl. From there he skips all the small bays, inlets, and estuaries until he reaches False Bay, a small bay three miles above San Diego Bay. In San Diego Bay he made his principal winter home, but was found again at San Quentin, nearly two hundred miles south, after skipping all between. Then after passing another long space he appears at Magdalena Bay in Lower California (Mexico), below which I can find no trace of him.

Why this avoidance of scores of places apparently as good as those at which he stops? And why is he not seen there even occasionally? Why does he not stop even for an hour to rest his wing weary with long wandering? Yet he will not stop, even in the night when he does his travelling. And year after year passes without even his voice being heard on bays as large as False Bay and even more free from the hunter, or on inlets and sloughs by the score where the tide brings all the food he can want and large enough to be safe for the wary Canada goose. Yet this little wanderer disdains them all, despises the woof of

green and gold threaded with crimson and blue the rains are weaving over the sunny land to the joy of his cousins, and delights only in the tumbling wave where the beds of kelp have tempered its roughness. He will not even fly over a point of land if he can go around it without too much detour, while a few hundred yards of dry ground seem an absolute bar to his passage.

What there is about San Diego Bay that pleases this dainty child of the North I never could divine, but the best shooting on the finest of American water-fowl could be had every day when I first went there. The shooting from the shore was especially fine because the sand-spit that forms the bay widens out into the two bodies of land forming Coronado Beach. These were almost divided by Spanish Bight, which ran almost to the ocean, leaving a small strip of sand a few yards wide. This was the only bit of land about this bay over which the birds would fly, and over this they streamed in countless thousands at every turning of the tide, following the bight to the bay, thus saving several miles of detour by the mouth of the harbor.

It seems but a few years since San Diego Bay in winter was a sight for the gods. Almost unknown to the hunter, it was alive with water-fowl from the time the first fleece of the storm-cloud flecked the blue of the summer sky till the nest-

ing call of the quail rang from the sumac on Coronado Beach. From the long wharf you could see the divers catch fish in the clear water beneath, while canvas-backs and mallards merely swam out of your way. Snowy pelicans fishing in revolving chains cut the water and rose in air, little terns dived from on high in all directions, while gulls of every kind drifted about your head or sat lazily on the piles to inspect you. But it was not the shag or merganser that floated everywhere on the untroubled waters, or the frigate-bird so softly sailing over the blue mirror that then knew nothing of sewers, that attracted your attention. The eye was quickly riveted on acres of black dotted with white that lay far out upon the water in strict exclusiveness, and from which came a muffled "wah—ook" like the distant babel of frogs. No sign did these dark dots give of any communion with the rest of the feathered tribes, and they especially disdained all those silly enough to allow man to look at them.

Out in the ocean thousands more were riding the lazy swell of the kelp, but all as quiet as those in the bay. Not a wing was raised on either water unless you were weak enough to think you could shoot one from a boat. Then, long before you were within reach with the best gun, they rose with the quickness of ducks and spun away

like arrows of jet feathered with light. About the size of the snow goose, they were far quicker and more graceful, their flight unlike that of any other goose, their stroke of wing almost as rapid as that of the mallard. But their flight was farther than that of any duck, their alighting more cautious, only far out upon the water and never upon the shore or near it.

Peace broods over even the largest bands while the tide is flowing. But almost from the moment it begins to ebb, excitement ripples through the dark ranks. Far down the shimmering face of the bay long, dark strings begin to rise out of the sheets of black, while lines of black dots loom on the horizon of the great, peaceful sea. Yet all this implies nothing for you unless you well know their slippery ways, for even from an early day no bird knew better the swinish nature of man, and no water-fowl has kept as rapid pace with his improvements in rooting up all that is fair in nature's garden. Hence as early as 1875 it was quite impossible to get a shot at the black brant from a boat, quite as much so to get a shot from the shore unless well concealed, and very difficult even then without decoys to lure them near enough to the shore. And anything like the wabbling duck decoys of that day would be seen through at once by the keen eyes that sparkled in the black heads. As it was useless to expect

any of the birds to fly over the land, this blind had to be near the water, where anything conspicuous would be suspicious. A box sunk in the mud with a very light fringe of seaweed was the only sure thing, and even from this it was unsafe to show a corner of your hat or an inch too much of gun. Even this did not last long, and by 1883 a floating battery out in the water was about the only thing that could deceive them, as they do not fly very high. And by 1890 most of them had ceased to trust their judgment about the safety even of open water, and forsook San Diego Bay for the more quiet waters of Mexico.

Yet it seems but yesterday that the dark lines of birds rose over the narrow sand-spit that separated Spanish Bight from the ocean, sending a strange thrill even through nerves that had gazed unmoved on the mightiest hordes of other water-fowl the North could send down before the days of the breech-loader. And soon a dark haze began to appear on each side of the dark dots of which the line was composed, changing quickly into the quivering of jet-black wings mingled with flashes of light from white collars around swarthy throats. Yet hardly did we dare look at them, but lay crouching low in the box, waiting for the hiss of sailing wings to tell us they were nearing the decoys. Yet rarely would they do so at first, but on they swept in ranks sometimes two

hundred strong, three hundred yards or more beyond the decoys, making a grand display of snowy underwear, in contrast with their jetty robes, as they passed. But vainly we looked for them to turn; a suspicious "waa—ook" came from a few throats, and on went the line in tremulous black and white until it faded in the glimmer on the face of the water far down the bay.

But that was nothing, for scores and even hundreds of such flocks were sure to follow them in the next two hours, and not long did we have to wait after the turn of the tide before another line of dark dots was strung along the western sky. And soon there was a soft *ssssss*, *sss*, of sailing feathers, but just a little too far to justify raising a head or moving a gun. But the silence among the black throats showed that they had taken no alarm, and it was better to give them a chance to swing, for they seldom alight at the first approach to the decoys. Two hundred yards past they sailed with occasional beat of wing, when the line turned and back they came with every sail set and the air singing beneath them as they rode down an invisible slope directly toward the decoys. Yet, again, they were suspicious and turned for an upward flight, but they had swung in closer to the shore, and quickly we turned the guns upon them. Instantly the long sailing line was turned into a flapping huddle of white and black, with

each white-collared neck aimed upward and outward, mounting the resounding air at a pace that left us but a moment to get the gun into position. And a good gun it had to be, for these quick geese shed shot like hail unless very strongly driven, and even then they often carry it far out into the open water, settling into it in a long, drifting flight that shows no sign of death.

THE SWAN

While the goose was yet comparatively easy of approach and the mallard still a child of simplicity in California, the wild swan seemed to know that his size and rarity made him a mark for the great white spoiler, so that he alighted only in the larger ponds, kept well out in the middle, and mounted the breeze in hot haste when a man came near with a gun. But with all his shrewdness he disliked to change his course when once under full headway, so that if another man were concealed along the line of flight he was likely to take for another lake, the swan was too apt to rely on speed of wing to get past the danger, if discovered, rather than swerve enough from it in time. This is about the only way one can rely on getting a swan with the shot-gun, for they are everywhere rare as compared with other water-fowl. A good, long-range rifle-shot may occasionally get one, but you will find the game sitting a long way out

in the water and not at all given to allowing sighting shots. He is, however, given to nervousness that may affect his wings about the time you raise the rifle. He is quite solitary in his habits, has nothing to do with geese or ducks, comes late and goes north early, and thousands of sportsmen have never even seen the swan.

With most people who hunt water-fowl it is the height of ambition to kill a swan — the stupidest ambition one can have. I recovered early; never shot but two, and may Heaven forgive me for that. Too tough and dry to eat, there is no excuse for murdering such a rare and beautiful bird simply because it is big. It is worth a thousand times more in air than in the bag, for, contrary to popular impression, it is an elegant flyer. Not one in a hundred seeing it in full career, even at short range, would suspect what it is. Its great size diminishes in lines of perfect grace, the long neck is drawn in without any awkward curves, everything is in perfect proportion; and, cleaving the air at a pace few of the ducks can surpass, its speed helps out the proportion while the harmony of the whole is well maintained by a stroke of wing so rapid that the stranger is apt to take it for some albino duck. While pure game in all its ways, and deemed by all a legitimate game-bird, the swan should nevertheless be placed upon the list of harmless and beautiful birds that no one should kill.

THE SAND-HILL CRANE

The same man who is crazy to shoot a swan will probably curl his nose in high disdain at your intimation that the sand-hill crane is a game-bird of the first class. He confounds him with the herons, bitterns, egrets, and other fish eaters, and does not know that he is almost entirely graminivorous like the goose, although, in a different way, he too loves the water. When on good grass or grain the sand-hill crane is almost the equal in flavor of the turkey and under almost any circumstances is better than a poor duck of any kind. As a mark that will try your utmost care to get even within sure rifle-shot of, he is surpassed only by his great white cousin, the whooping-crane, and the wild turkey. The whooping-crane is not found on this coast or anywhere west of the Rocky Mountains, as far as I can learn. Every kind of water-fowl from the great basin between the Rocky Mountains and the Sierra Nevada winters on the Colorado River, especially at its mouth. But even there I could not find the whooping-crane, though the common sand-hill was in great numbers. And men who have run boats on the lower river for thirty years have never seen the big white sand-hill, or whooping, crane.

But the common sand-hill of bluish gray or

ashy blue is one of the finest judges of human nature, and rarely lapses into one of those fits of idiocy that sometimes make even the turkey fall an easy victim to the tenderfoot. Circling near midday in the topmost blue, and sending down at intervals a long, vibrating note almost as penetrating and hard to locate as the rippling music that falls from the upland plover, he seems to belong only to the sky. Equally hopeless seems the attempt to get a shot when he starts on his travels. High in air he still floats along, disdaining all country where fences and houses show elbow-room growing scarce. A true lover of the wild and free, he even scorns country still wild enough for the goose and, trusting to his untiring wing, will go hungry for another five hundred miles to enjoy the grand sweep of some plain too big for man to mar. When the sand-hill crane is travelling in flocks of fifty to a hundred and fifty or more, with flock after flock mingling its strange call with one just passing over, the man who thought it a common heron is apt to find a string within tuned in unison with that wild tremolo. His anxiety to secure one is tripled when he sees band after band on the sunlit plain, some standing on the flowery knolls, others strolling across the greener swales, with others feeding where the plain rolls broad and free. Such was a common sight in California in winter up to a few years ago.

Not merely thousands but hundreds of thousands dotted the great plains, often looking in the distance like bands of sheep.

But as far back as 1875 this wild rover of the blue knew all about guns. Once in a great while a flock might neglect to consider a gully in the plain or a belt of reeds near some lake, so that one could sneak within rifle-shot. But I never yet succeeded in crawling within sure shot-gun range, though there is, of course, ground on which it may be done. But even a sure shot with the rifle was rare, no matter how plenty the birds; and though the plain might ring for many a mile with their reverberating notes, one shot was quite sure to clear the whole stage for a mile or more and send the actors to rest in long, curling lines far in the dome of heaven.

There are certain lines on which the cranes often swing low along the plain in making short changes of feeding-ground or in going to water, and the surprise of the sportsman is rarely greater than when he attempts a bag by hiding along this line in some bush or gully. Just as that wild cry rolls thrillingly near and you move the gun a trifle to get it ready or twist your eye a bit to see how close they are, there is a sudden sheering off in the line, and the bodies that seemed so large that their momentum must carry them within shot are far out of reach on wings nimble enough

to astonish you. If this does not make you feel you are dealing with a game-bird, watch the number of those that, far away, are headed straight for you yet drift away to one side or the other long before reaching your place of hiding. You will find the number too great to be accidental, and if you watch from another point, you will find they are doing little sheering after you are gone.

It seems absurd to say that any birds could see the sheen of a gun or a few inches of hat and recognize danger in them at so great a distance. Yet you will lose shot after shot if you make the slightest motion in craning your neck or shifting the gun. And you lose many a one, even when you keep perfectly still. The only approach to certainty I ever found was to lie in some cut or break in the ground face downward and with the gun underneath completely covered, without trying to look up or squint in any way, lying there in perfect patience till the sound of wings overhead told it was too late for the game to swing aside. Then such a jump as never was, and if I landed on my feet without losing my grip on the gun, there was a chance for a double shot into the wildest medley of laboring wings, long shining beaks, and clamorous throats.

III

THE WADERS AND SHORE-BIRDS

The great family of birds that love the wet, salt shore has a wonderful representation on the Pacific Coast, but on account of the abundance of ducks and quail in midwinter they have not been appreciated, as they long have been on the Atlantic Coast. The tenderfoot and the farmer's boy have reduced their numbers in some places, but the host is still large enough to afford infinite shooting for those who know how to take it. Every shore of every bay and inlet used to be dotted all winter with waders, so that a bag of a hundred or more was easy on the ebb of any tide. Enough yet remain to amuse any one who cares little about the size of the bag. Near the shore little brown plover trotted over the greening plains after the first rains of winter, with many a curlew keeping him company, and they often wandered miles back upon the slopes. Where the ground was damp enough for worms, Wilson's snipe, with all his charming manners, was quite sure to be found. He has developed his erratic ways and risen to the emergency created by new guns and powders until he is now about the most elusive little thing on earth. You can

get good shooting on him in August on his breeding-grounds around Klamath Lake, and from then until April can find him at his best in many parts of California.

Nearly all that is fair and lovely in the combination of sunshine and birds finds its climax at the mouth of the Colorado River. It is one of the few places where all the birds that love the water and the shore can now find rest for their weary wings. It still lies in all its virgin simplicity, and a trip from Yuma, about one hundred and sixty miles, will well repay the time and cost to those who love something far beyond the orbit of the tenderfoot. It can be done by wagon, but a canoe should be carried, and a better way is by large boat down the river. A special excursion generally has to be made up at Yuma, where steamboats are available but no reliance can be placed on regular boats. There have been none since the railroad came to Yuma over twenty years ago. If there were, it might no longer be a trip worth taking. For the same reason you cannot kill much game, for you cannot even give it away. But any one who can truly appreciate such a scene at all is quite well satisfied in looking at the vast quantities of game he will there see. Birds continue down each side the Gulf of California wherever there are sloughs or inlets for ducks and geese, while the shore-

birds are plenty all along the open shore. Hence, as far down as Guaymas and below, duck-shooting may be had all winter.

This whole gulf is the winter home of myriads of birds that breed in the great basin between the Rocky Mountains and the Sierra Nevada. Many winter in Arizona and along the Colorado, but the great rendezvous is at the mouth of the river and from there down each shore. These birds are joined by myriads more that cross the mountains of southern California. In the wet meadows on the top of San Pedro Martir, two hundred miles in Lower California below the American line, I have found plenty of ducks in September six thousand feet above the sea. This was but ten miles from the eastern rim, three thousand feet higher, over which the gulf shimmers nearly two miles below. These ducks were no doubt waiting for colder weather to make the plunge. I could not determine whether they bred there or not. But ducks appear early on the ponds at five thousand feet on the mountains in southern California and then cross two hundred miles or more of perfect desert to the Colorado.

I have several times found shore-birds crossing the desert by way of the Mojave River, — dry except at long intervals, — making for the Pacific Coast, while in spring large flocks of sand-hill cranes, swinging high over the mountains on their

way from the mouth of the Colorado to the Pacific side, are a common sight. It seems quite as certain that many of the vast army of waders and ducks at the mouth of the Colorado have made the entire trip of two thousand miles from San Diego around Cape St. Lucas and up the shores of the Gulf of California to its head. The fact that most of the waders must have made the trip on foot does not detract from its probability. For the birds are found on both sides of the gulf and all the way around the point of the peninsula of Lower California, and they do not breed there. Almost the whole of the way the land is perfect desert, on much of which no living thing is seen, or could exist without being seen, while on the parts that are not desert these birds seem equally unknown. At high tide they often go ashore, and in some places it is so high they have to; but that is the only time they are ever known far from the water's edge, while in summer not one is seen even there, though the shore is lined with them in winter.

From Yuma the Colorado winds through one of the most dangerous deserts of the world. But for two or three miles from the river most of the land is extremely fertile from its overflow, while sloughs and branches extend this area much farther in places. But the banks are robed in timber that cuts off the view so much that some

BLUEBILL

one in the party must know the country, or thousands of acres of the finest duck ground would lie unsuspected. Near the river the land is very flat, and the mountains that lie so dreamily on the horizon are the boundaries of many a league of desert. Near its mouth the river widens out into great flats of fine alluvium that in the intensely dry air, dry even at the edge of the gulf, make the most marvellous mirage, which will show you — at shooting distance, too — all the little lakes filled with ducks, cranes, and snipe you want. On these flats you will find many waders driven from the shore by the great tide of this section and can bag all you wish, but the grand sight is on the salt shores when the tide is out. Miles up the mouth of the river snowy pelicans sailing high in great flocks warn you that you are nearing some large body of water, while sand-hill cranes floating far above them, ducks whizzing here and there, with geese whitening or darkening the horizon, tell you there is some feed in this country outside of the salt shores. I have found sloughs here out of which the ducks and geese could not be driven by any amount of shooting, yet with hard bottoms, very uniform depth of water, and all the conditions for ideal shooting. In the immense reeds that lined all the water and grew far out into it, I had an endless choice of blinds. So plenty was the game

that we located it from the boat nearly two miles away by its noise, and when we reached the spot it was one continuous roar of wings and whiz of returning and circling birds. Every variety found on the coast was there, with sand-hill cranes, snipe, and plover in quantities like those of the olden time. This depends largely on the time and extent of the overflow. In some years and earlier in the season the sloughs would be larger as well as deeper and more numerous. December is the best time, though any time during the winter will do.

All birds seem to stay here long after the weather is warm enough farther north, with more and better feed, as far as man can see. Here on the mud-flats of the river the tall curlew, arrayed in brown and buff, wings his winding way on every hand, his sonorous call ringing from shore to shore; and there his long, curved bill explores the shore, with the avocet, in black and white, and bill curved up instead of down, matching him in his stately march to dinner. Far up and down the shore gleams the contrast of black and white on the turnstone, or oyster-catcher, as he plies his shorter bill among the larger shellfish, while the same colors on the stately stilt enlarge the dignity with which, on longer leg, he struts about among the grayer brethren.

Phalaropes? If there ever were any, they are

all here in thousands of lines of gray and brown, threading the lines of white and black, ever winding over miles of mud. Godwits by the hundred trot here and there, in tawny robes like those of the curlew, the difference in their straight bills being hardly noticeable at any great distance, while sandpipers of many sizes, in pepper-and-salt, gray, brown, and their various mixtures, scud here and there on legs filmy with speed or whisk about on nebulous wing. Here are noisy tattlers by the score, looking as happy as if these shores were all the world, rising into occasional flight and putting on great airs only to descend again to plain mud. And here are dowitchers by the thousand, looking often like the lovely Wilson's snipe to the eye of the tenderfoot, and sanderlings, whose black and ashy tints mingled with red, with their shorter bills and legs, make them look like plover and willets, with colors quite as gamy, but longer of leg and neck and more noisy. And mingled with these is the glossy ibis, whose dark greenish bronze shines so brightly in the strong sunlight that streams through this dry air; and the big white wood-ibis often rises into the vault of heaven, on sailing wing, to circle among the sand-hill cranes and pelicans, with even greater grace, as they look down upon the vast throng of birds that dot the shining mud for many a league.

When all these, with the herons, bitterns, and snowy egrets that winter here and the vast troops of ducks that, out on the gulf, cover thousands of acres or sweep in great clouds across the shimmering surface, unite in the field of vision, even the tenderfoot will lay down his gun and look in amazement, while the expert will hardly think of taking it up. All ideas of shooting are lost when one looks down the miles of moving specks along the shore that twine and intertwine in a million curling lines, while from the water comes the roar of as many wings, all in one dark haze that shuts out the sky beyond.

DIAGNOSES OF FAMILIES AND GENERA

THE WATER-FOWL

Class Aves. **Order Anseres.** *The Lamellirostral Swimmers.* (Swimming birds having toothlike serrations or lamellæ on the bill.) Only one family in order : the *Anatidæ* — ducks, geese, and swans.

Family Anatidæ. Swimming birds usually of large size with short tails. Wings of moderate length, strong and pointed, giving vigorous and whistling flight. Bill covered with a leathery integument, with a hard nail at the tip and usually broad and flat. Short legs with the tibia almost buried in the feathers. Tarsus flattened. Anterior toes webbed ; hind toe always present but usually small. Præcocial young. There are five subfamilies found in North America — *Merginæ*, *Anatinæ*, *Fuligulinæ*, *Anserinæ*, *Cygninæ*.

Subfamily Merginæ. *The Mergansers.* Type : Neck shorter than body; tarsus shorter than middle toe without claw. Bill narrow, nearly cylindrical, long, with hooked nail and toothlike serrations on cutting edge of upper mandible ; no lamellæ on sides of lower mandible. Lores feathered. Tarsus with transverse scales in front; hind toe with a lobe. Sexes unlike.

This subfamily contains three genera — *Merganser*, *Lophodytes*, and *Mergus* — and about nine species, of which most belong to the Northern hemisphere. They are birds of handsome plumage, frequent both fresh and salt water, feed chiefly on fish, which renders their flesh unpalatable, and some of them nest in hollow trees.

Generic Types. *Merganser.* Length of bill three times its depth at base. Bill longer than head and than tarsus with very conspicuous toothlike serrations on both mandibles, which are inclined strongly backward. Head with a slight and pointed occipital crest. Tarsus about two-thirds as long as middle toe with claw. Tail about half as long as wing. Bill reddish. Two species of genus are found in North America.

Lophodytes. Length of bill three times its depth at base. Bill shorter than head but longer than tarsus, with serrations on mandibles,

short and blunt, not pointing backward. Crest of male large and semicircular. Tarsus about half as long as middle toe with claw. Tail more than half as long as wing. Bill black. One species in genus, confined to North America.

Mergus. Length of bill about twice its depth at base. Bill shorter than head, also shorter than tarsus, with the serrations on mandibles as in *Lophodytes*, but smaller and more numerous. Crest as in *Lophodytes*, but smaller. Bill blackish. One species in genus, a native of the eastern hemisphere; accidental in North America.

Subfamily Anatinæ: *The River-ducks.* Type: Neck shorter than body. Tarsus shorter than middle toe, without claw. Bill broad, flattened, with toothlike nail; the lower mandible with a series of lamellæ on sides and on cutting edge. Lores feathered. Tarsus with transverse scales in front. Hind toe without a lobe. Sexes unlike. Wing usually with metallic speculum.

This subfamily contains in North America nine genera, one of which only occurs as a straggler in Greenland, and sixteen species and subspecies. The males are birds of striking plumage, with usually a metallic patch of feathers on the wing; the females much plainer. They frequent chiefly fresh water, live largely on vegetable food, and have, consequently, flesh of fine flavor. Most species nest on the ground.

Generic Types. *Anas.* Bill about as long as head, broad, sides almost parallel, slightly widening toward tip. Culmen depressed in centre, rising toward base and tip. Lamellæ of bill scarcely exposed. Speculum brilliant. Tail rounded, of pointed feathers. Three species and two subspecies found in North America.

Chaulelasmus. Bill somewhat shorter than head, rather narrow, the sides parallel. Culmen slightly depressed in centre, level toward base and tip. Lamellæ of bill plainly exposed. Speculum dull. Tail short and rounded, of pointed feathers. One species in genus, almost cosmopolitan.

Mareca. Bill as in *Chaulelasmus*, but rising somewhat toward base. Lamellæ only slightly exposed. Speculum of male bright. Tail pointed. Two species are found in North America, one only as a straggler (?).

Nettion. Size very small. Bill shorter than head, very narrow, sides almost parallel. Culmen straight in terminal two-thirds, rising at base. Breadth of nail about one-fifth breadth tip of bill. The lamellæ completely concealed. Speculum green; no blue on wing. Nape with a small crest. Two species of this genus are found in North America, one only as a straggler.

Querquedula. Size very small. Bill about as long as head, narrow, but broader than in *Nettion*. Culmen rounding toward tip. Breadth of nail about one-third the breadth of tip of bill. Lamellæ concealed. Speculum greenish. Blue on wing-coverts. Nape without a crest. Two species are found in North America.

Casarca. Size about that of *Anas*. Sides of bill nearly straight. Culmen almost straight. Lamellæ of bill distinctly exposed. Speculum bright. Plumage striking. One species of genus is a rare straggler to North America.

Spatula. Bill much longer than head, narrow at base and very wide at tip (twice as wide at tip as at base), the edges of upper mandible hanging over the lower in the shape of a spoon, nail forming a hook. Lamellæ many and entirely exposed. Tail short and pointed with sharply pointed feathers. Wing as in *Querquedula*. The one species found in North America occurs throughout the northern hemisphere.

Dafila. Neck very long. Bill as in *Mareca*, about three times as long as wide. Tail wedge-shaped, with sharply pointed feathers; in adult male two central feathers projecting far beyond the rest. Speculum of male brilliant, of female dull. The one species found in North America occurs throughout the northern hemisphere.

Aix. Bill shorter than head, very high at base, depressed toward tip. Nail very large and much curved. Lamellæ few. Base of maxilla extending on side of head nearly to eye. Male with a large crest of silky feathers, female with a small crest. Tail feathers broad and rounded at tip. One species found in North America.

Subfamily Fuligulinæ. *The Sea-ducks.* Type: similar to the *Anatinæ*, but hind toe with a membranous lobe. Feet larger, and legs placed farther back. Wing usually without metallic speculum.

This family contains in North America thirteen genera and twenty-four species, of which one is believed to be extinct. One genus only occurs as a straggler, and another only reaches the coast of Texas except as a wanderer. Like the *Anatinæ*, the males are birds of handsome plumage, the females usually much plainer. They frequent chiefly salt water, gathering sometimes in enormous flocks, feeding largely on shellfish. As a result of this food their flesh is not considered desirable. The genera *Aythya* and *Erismatura* feed on vegetable substances, and their flesh is excellent. They greatly excel the river-ducks in their ability to dive; but on the wing their flight is less graceful, and they do not rise as easily from the water.

Generic Types. *Netta.* Bill broad, widest at base, narrowing toward tip, longer than tarsus. Culmen much depressed toward tip. Nail large, more than one-third as wide as bill at middle. Outline of loral feathering straight or slightly concave. Tail short and rounded. Head of male crested. One species occurs as a straggler in North America.

Aythya. Bill similar to *Netta* except in one species, but sometimes wider at tip than at base. Nail less than one-third as wide as bill at middle. Outline of loral feathering convex. Tail short and rounded. Head not crested. Five species occur in North America.

Clangula. Bill much shorter than head, high and broad at base, and tapering to tip. Nail small and narrow. Nostrils in front of the middle of the bill. Tail rather long and rounded, more than twice as long as tarsus. Head of adult male green with white spot in front of eye. Two species found in North America.

Charitonetta. Bill as in *Clangula*, but nostrils behind middle of bill. Tail rather long and rounded, about twice as long as tarsus. Head of adult male, purple, green, and violet, with broad white wedge behind eye. One species in genus, a native of North America.

Harelda. Bill much shorter than head and about as long as tarsus, highest and widest at base, tapering to tip. Nail large and broad. Nostrils high and near base of bill. Anterior outline of loral feathering nearly a straight line. Tail pointed, the middle feathers in adult male, as well as the scapulars, much elongated, the former as long as wing. One species in genus, common throughout the northern hemisphere.

Histrionicus. Bill very small and short, much shorter than head and shorter than tarsus, high and broad at base, tapering to tip. Nail very large and broad, occupying entire end of bill. Nostrils as in *Harelda*. Anterior outline of loral feathering convex. Tail short, about half as long as wing, the scapulars elongated. A metallic speculum. One species in genus found in northern North America.

Camptolaimus. Bill nearly as long as head, very broad, width at base equal to one-half the length of the culmen, widened toward tip by leathery expansion on the edge of maxilla. Nostrils high in basal third of bill. Lamellæ of under mandible prominent. Feathers of cheeks stiffened, bristle-like, with horny ends, extending in a convex line on side of upper mandible. Tail short. Speculum white. One species in genus, formerly in northeastern North America, now probably extinct.

Eniconetta. Bill shorter than head, not swollen, and without prolongations on forehead, compressed, width at base much less than half

the length of the culmen, not feathered as far as the nostrils, the edges of the maxilla bent over the mandible. Nail very large and broad, forming tip of bill, not hooked. Nostrils near base and high on maxilla. Speculum violet. One species in genus, a bird of the far North.

Arctonetta. Bill shorter than head, tapering from base to tip, not swollen, and without prolongations on forehead, feathered on the culmen beyond the nostrils, this feathering sweeping backward in an oblique line from culmen to mouth. Nail as in *Eniconetta.* No speculum. Eyes surrounded by an elevated space of short, velvety feathers. One species in genus, found in Bering Sea.

Somateria. Bill about half as long as head, much swollen, with prolongations stretching far back on forehead, feathering extending well forward on culmen and on sides toward nostrils. Nail large and broad, hooked and forming tip of bill. No speculum. Tertiaries curving downward over wing. Male black and white, female brown. Four species are found in North America, two confined to the North Atlantic, one to Bering Sea, and the fourth a bird of the far North.

Oidemia. Bill much swollen at base, depressed at tip, with no prolongations on forehead. Large, hooked nail forms entire tip of bill. Nostrils usually in front of the middle of bill. Feathering extending farther on culmen than on lores. No speculum. Male black, female dusky. Bills of males brightly colored. Four species occur in North America, but one only as a straggler, and all breed in northern latitudes.

Erismatura. Bill about as long as head, very broad, almost as broad as high at base, and widened and depressed at end. Tail feathers very stiff, narrow, and pointed, with the shafts grooved on the lower side. Tail-coverts very short. Nail of bill very narrow at first, then widening, and curved in a hook over the mandible. One species is found in North America.

Nomonyx. Similar to *Erismatura;* but bill rather more narrow, with the nail large and broad and not bent downward in a hook over mandible. Inner secondaries long, folding over primaries. Only one species in genus, a native of tropical America.

Subfamily Anserinæ. *The Geese.* Type: Neck somewhat shorter than body. Tarsus longer than middle toe without claw. Bill usually short, high and compressed at base, and tapering to rather narrow tip, which has a broad nail. Lamellæ present on mandible. Lores feathered. Tarsus with small, irregular plates in front. Hind toe without a lobe. Sexes alike. Wing rarely with metallic speculum; no speculum in North American species.

This subfamily contains in North America five genera and eighteen species and subspecies; of these four occur only irregularly, and two others are chiefly confined to the southern border of the United States. The geese are large birds, with long and powerful wings and great powers of flight. Most of them inhabit the far North in the breeding season, — the genus *Dendrocygna* being an exception in North America, — coming at the approach of winter to the lakes and bays of the United States, where they assemble in large flocks. They are fine swimmers but do not dive, feeding consequently in shallow water and often on the land; they feed chiefly on grasses growing either on water or land, and the flesh is therefore valuable for the table.

Generic Types. *Chen.* Bill about as long as head and tapering, very stout at base and higher than broad, its depth at base more than half the length of culmen; the cutting edges of both mandibles bevelled off, leaving an elliptical space in which the large serrations or lamellæ are very prominent. Nostrils in basal portion of bill. Head and neck of adults white. Bill and feet pink. Four species and subspecies found in North America.

Anser. Bill not longer than head, tapering, very stout at base and higher than broad, but not as high as in *Chen*, its depth at base less than half length of culmen; the cutting edges of mandibles slightly bevelled, leaving serrations somewhat exposed for more than half the edge. Nostrils in basal portion of the bill. Head and neck never white. Bill pink and feet yellow in North American species. Two species and one subspecies occur in North America, but two of them are only recorded from Greenland.

Branta. Bill shorter than head, tapering, moderately stout at base; cutting edges very little, if at all, bevelled, and serrations only visible at extreme base. Nostrils in middle of bill. Head and neck black. Tail-coverts and crissum white. Bill and feet black. Eight species and subspecies are found in North America; of these two are only stragglers from Europe.

Philacte. Bill not longer than head, tapering, moderately stout, the nail very large, occupying nearly one-third of maxilla, serrations only visible at extreme base of maxilla. Nostrils in basal half of bill. Head white. Tail-coverts and crissum grayish. Bill pinkish and feet yellow. Skull with superorbital depressions. Only one species in genus, an inhabitant of the Bering Sea coast of Alaska.

Dendrocygna. Bill much longer than head, the edges nearly parallel, not stouter at base. Nail prominent and decurved, serra-

tions of maxilla not showing. Nostrils in basal portion. Hind toe more than one-third as long as tarsus. Plumage, bill, and feet variegated. Two species of genus are found in the southern United States.

Subfamily Cygninæ. *Swans.* Size very large. Neck as long or longer than body. Bill longer than head, broad and flat at base, with sides nearly parallel and a small nail at tip. Lores partly naked. Tarsus with small, irregular plates in front, shorter than middle toe and claw. Hind toe without a lobe. Sexes alike. Wing without metallic speculum. Tail with twenty to twenty-four feathers.

This subfamily contains four genera and eight or ten species, of which one genus, containing three species, is found in North America. They are the largest of the *Anatidæ*, measuring more than three feet in length. The adults of species indigenous to the northern hemisphere are pure white in color. Like the geese they are vegetable feeders, frequenting retired localities, and seldom occur in large flocks. None of them are now common in most of North America. As a rule they are silent, but have a sonorous voice.

Generic Type. *Olor.* Color of adults white. Tertiaries and scapulars normal. Tail rounded and longer than middle toe and claw. The young with downy lores, projecting in a distinct angle on the sides of the bill. The distinction between this genus and *Cygnus* is very unsatisfactory. Three species are found in North America, one occurring only in Greenland.

THE RAILS

Order Paludicolæ (literally translated the "marsh dwellers").

Family Rallidæ. *The Rails, Gallinules, and Coots.* A large family with many species, distributed over most of the world. Small or medium-sized birds with usually narrow bodies and powerful thighs, living in marshes and trusting to their strong legs, rather than to their short and rounded wings, for safety and subsistence. Divided into subfamilies, — *Rallinæ*, *Gallinulinæ*, and *Fulicinæ*.

Family Type. Wing short, rounded, and concave, when folded not reaching to end of tail. Head completely feathered, or with frontal shield. Nostrils open. Tail soft and feeble, almost hidden by the coverts. Toes long, without basal membrane. Hind toe long. First quill longer than the seventh, its inner web normal. Wing less than ten inches long. Bill and feet vary greatly.

Subfamily Rallinæ. *The Rails.* Type: Forehead feathered to base of bill, no frontal shield. Toes without lobes. Body much compressed. Three genera — *Rallus*, *Porzana*, and *Crex* — in North America.

Generic Types. *Rallus.* Bill long, slender, decurved, longer than head, and as long as, or longer than, tarsus. Nasal groove long, deep, and narrow, extending about two-thirds of culmen. Nostrils in basal fourth, long and narrow. Tarsus equal to middle toe without claw. No pronounced angle on mandible.

Porzana. Bill short, stout, straight, compressed, not longer than head, and not more than two-thirds as long as tarsus. Nasal groove broad, shallow, and extending about two-thirds of culmen. Nostrils in second fourth, broad and oblong. Tarsus not longer, often shorter, than middle toe without claw. No pronounced angle at gonys on mandible. Folded wings not reaching nearly to end of tail.

Crex. Similar to *Porzana*, but tarsus longer than middle toe. Folded wings reaching nearly to end of tail. A pronounced angle on gonys.

Subfamily Gallinulinæ. *The Gallinules.* Type: Forehead with a broad, horny, frontal shield. Toes without lateral lobes. Body somewhat compressed. Bill much as in *Porzana.* Two genera in North America, — *Gallinula* and *Ionornis.*

Generic Types. *Ionornis.* Bill very stout and high. Nostrils oval. Tarsus longer than middle toe without claw. Inner posterior surface of tarsus covered with a single row of large, square scales. Toes without lateral marginal membrane.

Gallinula. Bill more slender and not so high. Nostrils elongated. Tarsus shorter than middle toe without claw. Inner posterior surface of tarsus covered with several rows of hexagonal scales. Toes with narrow marginal membrane.

Subfamily Fulicinæ. *The Coots.* Type: Bill and frontal plate of head as in *Gallinulinæ.* All toes with broad lateral lobes. One North American genus, — *Fulica.*

Generic Type. Tarsus heavy, shorter than middle toe without claw, and covered with rather broad scales. Nostrils long and broad, near the middle of the bill. Plumage dark slate. Bill of adults whitish.

THE SHORE-BIRDS

Order Limicolæ. (The shore-birds, literally translated the "mud-dwellers," so named from the habits of most of the order.) Wading birds, usually of small size with short tails, long and usually pointed wings, usually long and pointed bill, long legs, and elevated, small, or wanting hind toe, or if hind toe long, claws very long with a spur on the wing, and with præcocial young. Seven families with nearly seventy species are found in North America.

Family Phalaropodidæ. *The Phalaropes.* A family containing three species of small, lobe-footed birds of aquatic habits, at least two species spending most of the year on the waters of the ocean. Three genera with one species in each, — *Crymophilus*, *Phalaropus*, and *Steganopus*.

Family Type. Small size. Bill equal to or longer than head. Tarsus greatly compressed. Legs with transverse scales. Anterior toes with lateral membrane, posterior lobed. Neck long. Feathers of breast compact and ducklike.

Generic Types. *Crymophilus.* Bill broad, straight, and flattened. Tarsus short, equal to middle toe and claw, also equal to culmen. Marginal web of toes broad, scalloped at joints.

Phalaropus. Bill slender and pointed. Tarsus longer than middle toe and claw, but shorter than culmen. Marginal web on toes broad, scalloped at joints.

Steganopus. Bill long, slender, pointed. Tarsus longer than middle toe and claw, and equal to culmen. Marginal web narrow and barely scalloped.

Crymophilus and *Phalaropus* are found throughout the northern hemisphere, while *Steganopus* is confined to America.

Family Recurvirostridæ. *The Avocets and Stilts.* A family of about a dozen species of large birds, noticeable for their peculiar bills and long, slender legs. Two genera in North America with one species in each, — *Recurvirostra* and *Himantopus*.

Family Type. Size large. Bill very long and slender. Neck long. Legs long and slender. Tarsus covered with hexagonal scales, smaller behind. Anterior toes all somewhat connected by membrane.

Generic Types. *Recurvirostra.* Bill strongly recurved. Tarsus not more than twice the length of middle toe and claw. Anterior toes fully webbed. Hind toe present.

Himantopus. Bill nearly straight. Neck and legs very long. Tarsus more than twice the length of middle toe and claw. Anterior toes scarcely webbed and divided to the base. Hind toe absent.

Family Scolopacidæ. *The Woodcocks, Snipes, Sandpipers, etc.* This is the largest family of the shore-birds, and of it about forty-five species have been recorded from North America, and of these several show geographical variation sufficient to entitle them to subspecific names. Most of the birds commonly known as shore-birds belong to this family, and although the majority are small, a few are among the largest of the Limicolæ. In coloring and shape of bill the species differ greatly, and those occurring in North America are grouped in nineteen genera and several subgenera.

Family Type. Agrees with *Phalaropodidæ* and *Recurvirostridæ* in having the nostrils narrow and fissured, the nasal groove extending well toward tip of culmen, the bill lengthened and straight beyond the nostrils, and not compressed or indented around them. In addition, bill slender, usually longer than the head, the nasal groove extending beyond middle with blunt, sometimes expanded, tip; the last often soft and fleshy. Neck usually long. Tarsus with transverse scales before, and behind except in *Numenius*. Toes not margined with membrane broadly to tips, with or without basal membrane. Hind toe generally present.

Generic Types. *Scolopax*. Size medium. Bill much longer than tarsus; tip of upper mandible thickened. Ears placed beneath the eye. Plumage same at all seasons. Toes free to base. Head with transverse bands on top. Tips of tail feathers below silvery white. Thighs entirely feathered. Three outer primaries longest, and broad like the rest. Outer webs of quills spotted. One species in genus, a straggler to North America.

Philohela. Size medium. Distinguished from *Scolopax* by having the three outermost primaries abruptly much shorter and narrower than the others and outer webs of quills plain. The only species of the genus is North American.

Gallinago. Size medium. Distinguished from *Scolopax* by having the head marked longitudinally above, tips of tail feathers below, buff, and lower part of thighs naked. One species indigenous to North America, and two as stragglers.

Macrorhamphus. Size medium. Bill much longer than tarsus. Tip of upper mandible thick. Outer and middle toes connected by web at base. Ears placed behind the eye. Plumage very different in summer and winter. (Both these latter characteristics common to rest of the genera of *Scolopacidæ*.) Two species in genus, both North American.

Micropalama. Size rather small. Bill long, slender, straight, slightly widened at tip. Tarsus very long, equal to bill and twice middle toe. Anterior toes united by web at base. One species in genus, belonging to North America.

Tringa. Size small or medium. Bill straight or slightly decurved, medium, very slightly widened at tip, about as long as head. Culmen longer than middle toe with claw. Tarsus about equal to middle toe and claw. Anterior toes not webbed. Inner webs of quills and under primary coverts not mottled. Twelve species and one additional subspecies are recorded from North America, of which ten occur regularly. These species are arranged in five subgenera.

Eurynorhynchus. Size small. Bill spoon-shaped, three times as wide near tip as at base. Toes not webbed. Only one species in genus, and that a straggler to North America.

Ereunetes. Size small. Anterior toes webbed at base, thus differing from *Tringa.* Two species in genus, both inhabiting North America.

Calidris. Size small. No hind toe, thus differing from *Tringa.* One species in genus, common in North America.

Limosa. Size large. Bill longer than tarsus, more than one-third as long as wing, thickened and curving upwards toward end. Nasal grooves extending almost to tip. Tail shorter than exposed culmen. Four species found in North America, of which one occurs only in Greenland.

Totanus. Size medium or large. Bill nearly straight, slender, about as long as tarsus, not thickened at tip. Nasal groove not reaching to terminal fourth. Tail longer than exposed culmen. Tarsus much longer than middle toe without claw, and more than one and one-half times as long as toe. Toes very slightly webbed. Legs usually yellow. Three, possibly four, species are found in North America, two of which are only stragglers.

Helodromas. Size small. Tarsus scarcely exceeding middle toe and claw. Legs greenish. Sternum single notched. Differs in these respects from *Totanus.* Two species and one subspecies in genus; all occurring in North America, but one only as a straggler.

Symphemia. Size large. Bill thick, slightly recurved, about as long as tarsus. Nasal groove reaching to about middle. Tarsus one and one-half times middle toe. Anterior toes markedly webbed at base. Legs bluish. Quills with a conspicuous white patch at base. One species with a subspecies in genus, at home in North America.

Heteractitis. Size medium. Bill straight, heavy, much longer than tarsus. Nasal groove extending about two-thirds of culmen. Tarsus short, equal to middle toe and claw, and about three times as long as hind toe. Outer and middle toe connected by web, no web between inner and middle toe. Quills entire dark colored. Two species in genus, one found in North America.

Pavoncella. Size medium. Bill straight, tapering, flattened at tip. Nasal groove extending nearly to tip. Tarsus very long, longer than bill, but not twice the length of the inner toe and claw. Bare part of tibia equal to about half the length of tarsus. Outer and middle toe connected at base by web. Tail not more than half as long as wing. Male much larger than female, and face of male in summer

covered with fleshy tubercles, and neck with a ruff of long feathers. One species in genus, a straggler in North America.

Bartramia. Size medium. Bill straight, shorter than head. Nasal groove extending nearly to tip. Tarsus very long, longer than bill and twice the length of inner toe and claw, and one and one-half times middle toe. Bare part of tibia equal to about one-half length of tarsus. Outer and middle toes connected by a web. Tail more than half as long as wing. Feathers extend farther on upper than on lower jaw. One species in genus, belonging to North America.

Tryngites. Size small. Bill straight, shorter than head. Nasal groove extending nearly to tip. Tarsus short, longer than culmen and about equal to middle toe with claw. Toes cleft to base. Tail not half as long as wing. Feathers extend farther on lower than on upper jaw. Inner webs of quills and under primary-coverts beautifully mottled. One species in genus, belonging in North America.

Actitis. Size small. Bill straight, medium, slightly longer than head. Maxilla and mandible grooved. Nasal groove extending three-fourths to tip. Tarsus short, about equal to middle toe and claw and to bill. Toes long, middle toe connected to outer by large web and with inner by small web. Bare part of tibia scarcely exceeding hind toe and claw. Tail not more than half as long as wing, but longer than exposed culmen. Two species in genus, only one found in North America.

Numenius. Size large. Bill strongly decurved, always long but varying; longer than tarsus and sometimes than tarsus and middle toe. Tip of upper mandible extending beyond lower. Nasal groove often extending through basal three-fourths of bill. Tarsus moderate in length and covered in front with transverse scales, and behind with small, hexagonal scales. Web between middle and outer toes to first joint, between middle and inner half as far. Hind toe small. Feathers of chin extending to opposite anterior end of nostrils. Of the eight species and one subspecies in this genus, three are natives of North America, two and perhaps three others occurring irregularly.

Family Charadriidæ. *The Plovers.* The largest family of shore-birds after the *Scolopacidæ*, swift flying, congregating like the sandpipers in large flocks and found like them throughout the world. The fourteen species and two subspecies recorded from North America are grouped in five genera.

Family Type. Size small or medium. Nostrils oval, short. Nasal groove closed obtusely and abruptly and not extending beyond middle of maxilla, or shallowing out broadly. Bill rather short, compressed

and indented around nostrils, swollen and curved beyond them. Hind toe generally wanting. Neck short and thick. Bill shorter than tarsus, the tip usually hard. Tarsus covered with small, hexagonal scales behind, and in front except in *Vanellus*.

Generic Types. *Vanellus*. Size medium. Bill shorter than head and equal to middle toe without claw, straight, slightly decurved at hard tip, and slightly swollen at end of nasal groove. Nostrils in shallow grooves extending two-thirds of maxilla. Tarsus with transverse scales in front, small, hexagonal scales on sides. Web between outer and middle toes at base. Hind toe with claw present. Head with long occipital crest. Plumage of upper parts metallic. Inner secondaries broad and with tips rounded, the distance from shortest secondary to tip of the primaries less than half the length of the wing. One species in genus, a straggler to North America.

Eudromias. Size small. Bill moderately stout, shorter than middle toe without claw. Tibia feathered nearly to tibio-tarsal joint. No hind toe. Inner secondaries very long and pointed. The distance from the shortest secondary to the tip of primaries more than half the length of the wing. No occipital crest. Upper parts of plumage brown without metallic lustre. Lower abdomen white. Tail not barred. One species in genus, according to Sharpe's classification, belonging to the Old World, but straggling to Alaska.

Squatarola. Size medium. Bill similar to *Vanellus*, but stouter and longer, about as long as head and equal to middle toe and claw. Nasal groove not prolonged much beyond middle of bill. Tarsus with small, hexagonal scales in front and on sides. Web between outer and middle toes at base. Hind toe with nail present but very small. Head not crested. Plumage of upper parts black and white, and entire lower parts medially black in summer. Tail barred. One species in genus, found through most of the world.

Charadrius. Size medium. Similar to *Squatarola*, but bill smaller and more slender, shorter than head, and about equal to middle toe without claw. Hind toe absent. Plumage of upper parts spangled with black, white, and yellow. Two species and a subspecies in genus; all found in North America, but only one widely distributed.

Ægialitis. Size small or medium. Bill varying from short and heavy in *Æ. meloda*, short and slender in *Æ. dubia* — in both shorter than middle toe without claw, to long and very heavy in *Æ. wilsonia* — equal to or longer than middle toe and claw. Upward swelling of maxilla at end of nasal groove, usually very marked. Nasal groove extending more than halfway to tip of maxilla. Tarsus with small,

hexagonal scales in front and on sides. No hind toe. Anterior toes slender and basal webbing usually small. Plumage of upper parts plain, brown or gray, lower parts always white medially. Of the more than twenty species included in this genus, nine species and subspecies are found in North America, but three of them have little claim to be considered birds of the United States. Though agreeing in many points, these species differ so in others that they have been divided into four or five subgenera.

Family Aphrizidæ. *The Surf Birds and Turnstones.* This family consists of two genera and four species, most of which range widely over the world, frequenting chiefly rocky shores and beaches. All occur in North America.

Family Type. Size medium. Agrees with the *Charadriidæ* in the shape of the nostrils, character of nasal groove, the indentation of bill near nostril, and the length of the neck. Bill stout, not longer than tarsus. Nasal groove very distinct. Tarsus short, covered with transverse scales in front. Toes separate to base. Hind toe present.

Subfamily Aphrizinæ. *The Surf Birds.* Only one genus, — *Aphriza.*

Generic Type. Bill about as long as head, terminal portion swollen and arched like a plover. Nasal groove extending more than halfway to tip. Tarsus longer than culmen. Tail emarginate. One species inhabiting Pacific Coast of America.

Subfamily Arenarinæ. Only one genus, — *Arenaria.*

Generic Type. Bill shorter than head, terminal portion compressed and pointed, straight or slightly recurved. Nasal groove extending not more than halfway to tip. Tarsus equal to culmen. Tail slightly rounded. Three species in genus, of which two are confined to America and the third occurs in the northern part.

Family Hæmatopodidæ. *The Oyster-catchers.* Large, odd-looking birds with brightly colored and strangely shaped bills. Shy and solitary in their habits, they range over the beaches of most of the world. Only one genus consisting of twelve species is contained in this family.

Family Type. Size large. Bill greatly compressed laterally beyond nostrils, not arched, pointed, longer than tarsus and about twice as long as head. Nostrils in basal fourth. Evident nasal groove not extending to middle. Bill and iris red or yellow. Tarsus heavy, covered with small, hexagonal scales. Toes stout and webbed between outer and middle at base. No hind toe. Four species in North America, one of which is a straggler from Europe.

Genus Hæmatopus. The generic type is the same as that of the family.

Family Jacanidæ. *The Jacanas.* A family containing about a dozen species of small wading birds, that in form and habits are in many ways intermediate between the rails and the shore-birds. Their range is tropical, and their toes and claws are greatly lengthened to enable them to run on the broad leaves of the water-plants growing in the lakes and marshes of their habitat.

Of this family only one genus — *Jacana* — and one species occurs in North America.

Family Type. Size small. Bill ploverlike, but longer and more pointed ; the culmen depressed to end of nasal groove, then arched to tip. Nostrils small and elliptical. Nasal groove not extending beyond middle of maxilla. Neck medium. Wings with a spur at metacarpal joint. Legs long and slender. Tarsus longer than bill. Toes very long, with extremely long claws, that of hind toe longer than the toe itself.

Generic Type. *Jacana.* Head with a frontal lappet, leaflike, and divided posteriorly. Primaries of normal shape. Spur on wing well developed and sharp. Tail short, central feathers not longer than the rest.

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